PA and Emergency Sound

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PLE-10M2-EU Plena Mixer

Features

- **6 microphone/line inputs, plus 3 music source inputs**
- **100 V, telephone and a call station input with priority & VOX**
- **2 zones and 2-channel operation**
- **Voice-activated emergency override**
- **2-tone chime built in, 7 more chimes optional with call station**
- **Outputs for line out, music-only out, and insert point**
- **24 V backup input with built in 24 V charger**
- **Separate tone controls for microphones and music sources**

The Plena mixer is a high performance, professional public address mixer with modern state of the art features. Combined with the PLE-1P120-EU or PLE-1P240-EU amplifiers, you can build an easy-to-operate yet powerful and flexible public address system. All this without sacrificing features such as ducking, priority, and flexibility. The mixer fulfills a wide variety of public address requirements yet is surprisingly affordable.

Functions

Inputs

All Mic/line inputs can be switched between microphone level and line level sensitivity. The inputs are balanced and can also be used unbalanced. Phantom power can be switched on to provide power to condenser microphones.

Input channels 1 and 2 can take priority over all other microphone and music inputs:

- Input 1 can be activated by contact closure on the PTT (push to talk) input, or the input can be switched automatically if a signal is fed to the input, i.e. if someone speaks into the microphone (VOX activation). A 2-tone chime can be configured to precede an announcement
- Input 2 also has a VOX possibility. When one or both inputs are configured for priority, the attenuation (reduction) of the cinch input can be set between -2 dB (little attenuation) and -∞ dB (mute). This provides a talk-over or voice-over function.

Input channels 1 and 2 also feature selectable speech filters to enhance the clarity of announcements.

Labels and colored pins

More unique features are available such as a detachable label where the user can write the names for inputs, music sources and zones. These labels can then be mounted on the front, protected by the clear window.

Another useful feature is to indicate preferred settings on the front panel by inserting colored pins at the preset levels of all knobs. You can then instruct a user to set all the controls to the green pins to configure the system for their particular use. A second user can set all controls to the red pins for their configuration.

Unique features

Separate music inputs are available with their own input selector, volume control and tone control. The user can choose a music source such as a CD player or radio (like the PLN-DVDT), and set the music level. A desired sound for the music source can be set separate from the mic/line inputs. So if the music requires boosted low frequencies, the microphone voices will still be clear – a truly unique feature in its class.

The tone controls also have the following unique features:

- The mixer features separate tone controls for mic/line inputs and music inputs so the microphone voice can be specifically optimized for excellent speech or singing
- The tone controls for music enable the most suitable music reproduction

In addition, the tone controls are not standard bass and treble controls; our experience has enabled us to develop a tone control that can be used as a traditional tone control with high and low control, but with a powerful contour that addresses the problems that are found in real situations.

The tone control for the microphone and line inputs:

- boosts warmth in voices without boosting rumble, and cuts rumble without losing warmth in the low frequencies
- boosts sparkle without adding sharpness in the high frequencies when boosting, and reduces harshness and sharpness without reducing clarity when cutting

The tone control for the music inputs:

- boosts deep bass first without making the sound hollow or boomy, and cuts rumble without losing warmth in the low frequencies
- boosts sparkle without adding sharpness in the high frequencies, with slightly different frequencies to suit music reproduction

Integration

A telephone / 100 V emergency input with VOX activation is provided for easy integration with another PA system or a telephone paging system. It has its own preset volume control and overrides all other inputs, including call station and inputs 1 and 2.

Zones

The mixer has two zone outputs. The music can be switched on and off in the zones via the front panel and optional wall panel. Announcements from the PLE-2CS two-zone call station can be routed to zone 1 or zone 2, or both. Announcements from the tel/100 V input or inputs 1 & 2 are routed to both zones. Input 1 can be used for a PLE-1CS all-call call station or any other microphone or call station with a PTT contact. The unit also has a line output to connect the pre-amplifier output before zone selection, making it possible to create a third zone. This output can be switched to music only, for example, so that music on hold can be provided for the telephone system. Loop-through input and output connections enable external sound processing equipment (e.g. an equalizer or Plena feedback suppressor) while maintaining a balanced connection to the amplifiers.

Output status

An LED VU meter monitors the master output. A headphone socket, below the VU meter, provides the mixer output before zone selection so you can listen to the output before the signal is sent to the zone.

Controls and indicators

Front

- On/off switch
- Power on LED
- LED VU meter for master output (LEDs for -18, -12 -6, -3, 0 dB)
- Master volume knob
- Six volume knobs for microphone inputs
- Knob for treble level
- Knob for bass level
- Headphone socket
- Two zone selector buttons
- Background music button

Back

- Dip switches
- Chime level
- Ducking level
- Tel/100 V volume control

Interconnections

See Technical Specifications.

Certifications and Approvals

Region	Certification	
Europe	CE	
Safety		acc. to EN 60065
EMC emission		acc. to EN 55103-1
EMC immunity		acc. to EN 55103-2

Installation/Configuration Notes

Rear view

Parts Included

Quantity	Components
1	PLE-10M2-EU Plena Mixer
1	Power cord
1	Manual
1	Set of 19”mounting brackets
1	Plena Easy Line CD

Technical Specifications

Electrical

Mains power supply	
Voltage	115 - 230 VAC ±10%, 50/60 Hz
Power consumption	24 VA
Battery power supply	
Voltage	24 VDC, +10% / -15%
Current	1 A
Power consumption (maximum)	1 A
Performance	
Frequency response	50 Hz to 20 kHz (+0/-3 dB)
Distortion	<0.1% @ rated output power, 1 kHz
Low Control	Max -12/+12 dB (frequency is setting dependent)
Hi Control	Max -12/+12 dB (frequency is setting dependent)
RJ-45 input	**2 x**
Call station input	For PLE-2CS(MM)
Wall panel input	For PLE-WP3S2Z

Mic/line input	**6 x**
Input 1 (Push-to-talk contact with ducking functionality)	5-pin Euro style, balanced, phantom 3-pin XLR, balanced, phantom
Input 2-6 (VOX with ducking functionality on input 2)	3-pin XLR, balanced, phantom
Sensitivity	1 mV (mic); 1 V (line)
Impedance	>1 kohm (mic); >5 kohm (line)
Dynamic range	100 dB
S/N (flat at max volume)	>63 dB (mic) >70 dB (line)
S/N (flat at min volume/muted)	>75 dB
CMRR (mic)	>40 dB (50 Hz to 20 kHz)
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm (mic)
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
VOX (input 1 & 2)	attack time 150 ms; release time 2 s

Music inputs	**3 x**
Connector	Cinch, stereo converted to mono
Sensitivity	300 mV
Impedance	22 kohm
S/N (flat at max volume)	>70 dB
S/N (flat at min volume/muted)	>75 dB
Headroom	>25 dB

Emergency / telephone	**1 x**
Connector	7-pin Euro style pluggable screw terminal
Sensitivity telephone input	1 V – 10 V adjustable
Sensitivity emergency input	100 V adjustable
Impedance	>10 kohm
S/N (flat at max volume)	>65 dB
VOX	Threshold 50 mV; attack time 150 ms; release time 2 s

Insert	**1 x**
Connector	Cinch
Nominal level	1 V
Impedance	>10 kohm

Zone/Master/Music output	**3 x**
Connector	3-pin XLR, balanced
Nominal level	1 V
Impedance	<100 ohm

Mechanical	
Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Mounting	Stand-alone, 19" rack
Color	Charcoal
Weight	Approx. 4.5 kg

Environmental	
Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%

Ordering Information

PLE-10M2-EU Plena Mixer **PLE-10M2-EU**
10 input, 2-channel mixer

PLE-2MAxx0-EU Plena Mixer Amplifier

Features

- **6 microphone/line inputs plus 3 music source inputs**
- **100 V, telephone and a call station input with priority & VOX**
- **2 zones and announcement only output**
- **Voice activated emergency override**
- **High output power 120 and 240 Watts**
- **2-tone chime built in (7 more chimes optional with call station)**
- **Outputs for line out, music only out and insert point**
- **24 V backup input with built in 24 V charger**
- **Separate tone controls for microphones and music sources**

These Plena mixer amplifiers are high performance, professional public address units with modern state of the art features. They are easy to use, taking the complexity away from the user and putting it where it belongs, inside the equipment. Providing a crisp call or clear music is as easy as turning on the radio.

The amplifier is also surprisingly affordable, without sacrificing features such as ducking, priority and flexibility.

Functions

Microphone and line inputs

All Mic/line inputs can be switched between microphone level and line level sensitivity. The inputs are balanced but can be used unbalanced. Phantom power can be switched on to provide power to condenser microphones.

Input channels 1 and 2 can take priority over all other microphone and music inputs:

- Input 1 can be activated by contact closure on the PTT (push to talk). A 2-tone chime can be configured to precede an announcement.
- Input 2 can be switched automatically if a signal is fed to the input i.e. if someone speaks into the microphone (VOX activation).

When one or both inputs are configured to have priority, the amount of attenuation (reduction) of the cinch inputs, can be set between -2 dB (little attenuation) or -∞ dB (mute). This provides a talk-over or voice-over function. Input channels 1 and 2 also feature selectable speech filters to enhance the clarity of announcements.

Music inputs

Separate music inputs are available with their own input selector and volume control. The user can choose a music source like a CD player or radio (like the PLN-DVDT), and set the level of music.

You can set the desired sound for the music source separate from the mic/line inputs. So if the music needs boosted low frequencies, this does not lead to muddy sounding voices from the microphones. A truly unique feature in its class.

Personalized settings

More unique features are available such as detachable labels where the user can write the names for inputs, music sources and zones. These labels can then be mounted on the front, protected by the clear window.

Another useful feature is to indicate preferred settings on the front panel by inserting colored pins at the preset levels of all knobs. You can then instruct a user to set all the controls to the silver pins to configure the system for their particular use. A second user can set all controls to the red pins for their configuration.

Tone controls

The unique tone controls provide separate control for mic/line inputs and music inputs so that the voice on the microphones can be specifically optimized for excellent speech or singing. Correspondingly, the tone controls for background music provide the most appropriate music reproduction.

In addition, the tone controls are not standard bass and treble controls. Our experience has led us to develop a tone control that can be used as a traditional tone control with high and low control, but has a powerful contour that addresses the problems found in real situations.

The tone control for the microphone and line inputs boosts warmth in voices without boosting rumble and cuts rumble without loosing warmth in the low frequencies. In the high frequencies, the tone control boosts sparkle without adding sharpness, but when cutting is first, cuts harshness and sharpness without reducing clarity.

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The tone control for the music inputs boosts deep bass first without making the sound boomy, and cuts rumble without loosing warmth in the low frequencies. In the high frequencies the tone control is similar to the microphone inputs, with slightly different frequencies to suit music reproduction.

For easy integration with another PA system or a telephone paging system, a telephone / 100 V emergency input with VOX activation is provided. It has its own preset volume control and overrides all other inputs, including call station and inputs 1 and 2. The unit also has a line output to add amplifiers for larger systems, with more output power, this output can be switched to music only so that for instance music on hold can be provided for the telephone system. Insert (loop through) input and output connections enable external sound processing equipment, such as an equalizer or the Plena feedback suppressor, to be connected between the preamplifier and the power amplifier stages.

Power

These Plena mixer amplifiers come in 120 and 240 Watts output power. This power is directly available on 100 V constant voltage connections and on a low impedance connection for an 8 ohm load. Moreover, the amplifiers have a separate 100 V call-only output channel for addressing areas where only priority announcements are required. The call-only output can also be used for 3-wire remote, volume control override.

Zones

The mixer amplifier has two zone outputs. The music can be switched on and off in the zones via the front panel and optional wall panel. Announcements from the PLE-2CS two-zone call station can be routed to zone 1 or zone 2, or both. Announcements from the tel/100 V input or inputs 1 & 2 are routed to both zones. Input 1 can be used for a PLE-1CS all-call call station or any other microphone or call station with a PTT contact.

Output status

An LED VU meter monitors the master output. A headphone socket, below the VU meter, provides the mixer output before zone selection so that it is possible to listen to the output before the signal is sent to the zone. For total reliability and ease of use, a limiter is integrated into the output stage to restrict output if the user applies too much signal.

Controls and indicators

Front

- On/off switch
- Power on LED
- LED VU meter for master output (LEDs for -18, -12 -6, -3, 0 dB)
- Master volume knob
- Six volume knobs for microphone inputs
- Knob for treble level
- Knob for bass level
- Headphone socket
- Two zone selector buttons
- Background music button

Back

- Dip switches
- Chime level
- Ducking level
- Tel/100 V volume control

Interconnections

See Technical Specifications.

Certifications and Approvals

Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

Installation/Configuration Notes

Rear view

Parts Included

Quantity	Components
1	PLE-2MA120-EU / PLE-2MA240-EU Plena Mixer Amplifier
1	Power cord
1	Manual
1	Set of 19”mounting brackets
1	Plena Easy Line CD

Technical Specifications

Electrical

Mains power supply	
Voltage	115 - 230 VAC ±10%, 50/60 Hz
Inrush Current PLE-2MA120-EU	8/16 A (230/115 VAC)
Inrush Current PLE-2MA240-EU	9/19 A (230/115 VAC)

Battery power supply	
Voltage	24 VDC, +10% / -15%
Current PLE-2MA120-EU	6 A
Current PLE-2MA240-EU	12 A
Charge current	0.5 ADC
Charge float voltage	27.3 VDC

Power consumption	
PLE-2MA120-EU (mains)	400 VA
PLE-2MA240-EU (mains)	800 VA

Performance	
Frequency response	50 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	<1% @ rated output power, 1 kHz
Low Control	Max -12/+12 dB (frequency is setting dependent)
Hi Control	Max -12/+12 dB (frequency is setting dependent)

RJ-45 input	**2 x**
Call station input	For PLE-2CS(MM)
Wall panel input	For PLE-WP3S2Z

Mic/line input	**6 x**
Input 1 (Push-to-talk contact with ducking functionality)	5-pin Euro style, balanced, phantom 3-pin XLR, balanced, phantom
Input 2-6 (VOX with ducking functionality on input 2)	3-pin XLR, balanced, phantom
Sensitivity	1 mV (mic); 1 V (line)
Impedance	>1 kohm (mic); >5 kohm (line)
S/N (flat at max volume)	63 dB
S/N (flat at min volume/muted)	>5 dB
Dynamic range	93 dB
S/N (flat at max volume)	>63 dB (mic); >70 dB (line)
S/N (flat at min volume/muted)	>75 dB
CMRR (mic)	>40 dB (50 Hz to 20 kHz)
Headroom	>17 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm (mic)
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
VOX (input 1 & 2)	attack time 150 ms; release time 2 s

Music inputs	**3x**
Connector	Cinch, stereo converted to mono
Sensitivity	300 mV
Impedance	22 kohm
S/N (flat at max volume)	>70 dB

Music inputs	**3x**
S/N (flat at min volume/muted)	>75 dB
Headroom	>25 dB

Emergency / telephone	**1 x**
Connector	7-pin, Euro style pluggable screw terminal
Sensitivity tel	1 V maximum
Sensitivity 100V	100 V maximum
Impedance	>10 kohm
S/N (flat at max volume)	>65 dB
VOX	threshold 50 mV; attack time 150 ms; release time 2 s

Insert	**1 x**
Connector	Cinch
Nominal level	1 V
Impedance	>10 kohm

Master/music output	**1 x**
Connector	3-pin XLR, balanced
Nominal level	1 V
Impedance	<100 ohm

Loudspeaker outputs 100 V*	
Connector	Screw, floating
Max / rated PLE-2MA120-EU	180 W / 120 W
Max / rated PLE-2MA240-EU	360 W / 240 W

Loudspeaker output 8 ohm*	
Connector	Euro style pluggable screw terminal, floating
PLE-2MA120-EU	31 V (120 W)
PLE-2MA240-EU	44 V (240 W)

** Subtract 1 dB for 24 V battery operation.*

Mechanical	
Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Mounting	Stand-alone, 19" rack
Color	Charcoal
Weight (PLE-2MA120-EU)	Approx. 10.5 kg
Weight (PLE-2MA240-EU)	Approx. 12.5 kg

Environmental	
Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%
Acoustic noise level of fan	<33 dB SPL @ 1 m temperature controlled

Ordering Information

PLE-2MA120-EU Plena Mixer Amplifier 120 W, 10 input mixer amplifier	**PLE-2MA120-EU**
PLE-2MA240-EU Plena Mixer Amplifier 240 W, 10 input mixer amplifier	**PLE-2MA240-EU**

PLE-1MAxx0-EU Plena Mixer Amplifier

Features

- **4 microphone/line inputs, plus 3 music source inputs**
- **100 V and telephone input with priority & VOX**
- **Announcement only output, 3-wire volume override**
- **Voice-activated emergency override**
- **Wide range of power (30, 60 and 120 Watts)**
- **2-tone chime**
- **Outputs for line out and music only out**
- **Unique easy-to-use intuitive tone controls**

These Plena mixer amplifiers are high performance, professional public address units with modern state of the art features. They are easy to use, taking the complexity away from the user and putting it where it belongs, inside the equipment. Providing a crisp call or clear music is as easy as turning on the radio.

The amplifier is also surprisingly affordable, without sacrificing features such as ducking, priority and flexibility.

Functions

Microphone and line inputs

All Mic/line inputs can be switched between microphone level and line level sensitivity. The inputs are balanced but can be used unbalanced. Phantom power can be switched on to provide power to condenser microphones.

Input channels 1 and 2 can take priority over all other microphone and music inputs:

- Input 1 can be activated by contact closure on the PTT (push to talk). A 2-tone chime can be configured to precede an announcement.
- Input 2 can be switched automatically if a signal is fed to the input i.e. if someone speaks into the microphone (VOX activation).

When one or both inputs are configured to have priority, the amount of attenuation (reduction) of the cinch inputs, can be set between -2 dB (little attenuation) or -∞ dB (mute). This provides a talk-over or voice-over function. Input channels 1 and 2 also feature selectable speech filters to enhance the clarity of announcements.

Music inputs

Separate music inputs are available with their own input selector and volume control. The user can choose a music source like a CD player or radio (like the PLN-DVDT), and set the level of music.

Personalized settings

More unique features are available such as detachable labels where the user can write the names for inputs, music sources and zones. These labels can then be mounted on the front, protected by the clear window.

Another useful feature is to indicate preferred settings on the front panel by inserting colored pins at the preset levels of all knobs. You can then instruct a user to set all the controls to the silver pins to configure the system for their particular use. A second user can set all controls to the red pins for their configuration.

Integration

A telephone / 100 V emergency input with VOX activation is provided for easy integration with another PA system or a telephone paging system. It has its own preset volume control and overrides all other inputs, including call station and inputs 1 and 2.

The unit also has a line output to add amplifiers for larger systems with more output power. This output can be switched to music only, for example, so that music on hold can be provided for the telephone system.

Power

The mixer amplifiers come in 30, 60 and 120 Watt output power. This power is directly available on 100 V constant voltage connections and on a low impedance connection for an 8 ohm load. Moreover, the amplifiers have a separate 100 V call-only output channel for addressing areas where only priority announcements are required. The call-only output can also be used for 3-wire remote, volume control override.

Output status

An LED VU meter monitors the master output. A headphone socket, below the VU meter, provides the mixer output. For total reliability and ease of use, a limiter is integrated into the output stage to restrict output if the user applies too much signal.

Controls and indicators

Front

- On/off switch
- Power on LED
- LED VU meter for master output (LEDs for -18, -12 -6, -3, 0 dB)
- Master volume knob
- Four volume knobs for microphone inputs
- Knob for treble level
- Knob for bass level

- Headphone socket
- Background music button

Back

- Dip switches
- Ducking level
- Tel/100 V volume control

Interconnections

See Technical Specifications.

Certifications and Approvals

Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

Installation/Configuration Notes

Rear view

Parts Included

Quantity	Components
1	PLE-1MAxx0-EU Plena Mixer Amplifier
1	Power cord
1	Manual
1	Set of 19”mounting brackets
1	Plena Easy Line CD

Technical Specifications

Electrical

Mains power supply	
Voltage	230 VAC ±10%, 50/60 Hz (reduced power at lower mains or battery voltage)
Inrush current PLE-1MA030-EU	4.5 A
Inrush current PLE-1MA060-EU	5 A
Inrush current PLE-1MA120-EU	10 A

Power consumption	
PLE-1MA030-EU	100 VA
PLE-1MA060-EU	200 VA
PLE-1MA120-EU	400 VA

Performance	
Frequency response	50 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	<1% @ rated output power, 1 kHz
Bass Control	Max -12/+12 dB (frequency is setting dependent)
Treble Control	Max -12/+12 dB (frequency is setting dependent)
RJ-45 input	**1 x**
Wall panel input	For PLE-WP3S2Z
Mic/Line input	**4 x**
Input 1 (Push-to-talk contact with ducking functionality)	5-pin Euro style, balanced, phantom 3-pin XLR, balanced, phantom
Input 2-4 (VOX with ducking functionality on input 2)	3-pin XLR, balanced, phantom
Sensitivity	1 mV (mic); 1 V (line)
Impedance	>1 kohm (mic); >5 kohm (line)
Dynamic range	93 dB
S/N (flat at max volume)	>63 dB (mic); >70 dB (line)
S/N (flat at min volume/muted)	>75 dB
CMRR (mic)	>40 dB (50 Hz to 20 kHz)
Headroom	>17 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm (mic)
Music input	**3 x**
Connector	Cinch, stereo converted to mono
Sensitivity	300 mV
Impedance	22 kohm
S/N (flat at max volume)	>70 dB
S/N (flat at min volume/muted)	>75 dB
Headroom	>25 dB
Emergency / telephone	**1 x**
Connector	7-pin Euro style pluggable screw connector
Sensitivity Tel	1 V maximum
Sensitivity 100V	100 V maximum
Impedance	>10 kohm
S/N (flat at max volume)	>65 dB
VOX	threshold 50 mV; attack time 150 ms; release time 2 s
Master/music output	**1 x**
Connector	3-pin XLR, balanced
Nominal level	1 V
Impedance	<100 ohm

Loudspeaker output 100 V	
Connector	Euro style pluggable screw terminal, floating
Max / rated PLE-1MA030	45 W / 30 W
Max / rated PLE-1MA060	90 W / 60 W
Max / rated PLE-1MA120	180 W / 120 W
Loudspeaker output 8 ohm	
Connector	Euro style pluggable screw terminal, floating
PLE-1MA030-EU	16 V (30 W)
PLE-1MA060-EU	22 V (60 W)
PLE-1MA120-EU	31 V (120 W)
Mechanical	
Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Mounting	Stand-alone, 19" rack
Color	Charcoal
Weight	
PLE-1MA030-EU	Approx. 5 kg
PLE-1MA060-EU	Approx. 8.5 kg
PLE-1MA120-EU	Approx. 10.5 kg
Environmental	
Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%
Acoustic noise level of fan (PLE-1MA120-EU)	<33 dB SPL @ 1 m

Ordering Information

PLE-1MA030-EU Plena Mixer Amplifier 30 W, 4 mic. and 3 BGM input mixer amplifier	**PLE-1MA030-EU**
PLE-1MA060-EU Plena Mixer Amplifier 60 W, 4 mic. and 3 BGM input mixer amplifier	**PLE-1MA060-EU**
PLE-1MA120-EU Plena Mixer Amplifier 120 W, 4 mic. and 3 BGM input mixer amplifier	**PLE-1MA120-EU**

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PLE-1Pxx0-EU Plena Amplifier

Features

- **120 and 240 W power amplifier in a compact housing**
- **1 V line level balanced input**
- **70 V, 100 V and 8 ohm outputs**
- **100 V input for slave operation on 100 V speaker line**
- **Temperature-controlled forced front to back ventilation (directly stackable)**
- **24 VDC backup power with built in charger**

The PLE-1P120-EU and PLE-1P240-EU are two high-power plug-and-play cost effective power amplifiers that deliver 120 and 240 Watts to constant voltage or 8 ohm loads. Built with premium quality and protections, they offer basic functionality at a budget price. The amplifiers offer straight 1 V and 100 V line in, and 70 V, 100 V and 8 ohms out. They can extend the power of the PLE- series mixer amplifiers or be combined with the PLE-10M2-EU mixer, or work anywhere where more power on an existing 100 V line is needed or when a line level signal is provided.

Functions

Protection

The amplifier is protected against overload and short circuits. A limiter protects the amplifier and loudspeaker against accidental overdriving. A temperature-controlled fan ensures proper cooling without producing acoustic noise at lower output levels.

Power input and output

The unit operates both on mains power and on a 24 V battery power supply for emergency back up, with automatic switchover. The amplifier also has a built-in charger to charge the connected battery. The system has a balanced input and loop-through facility. This makes it easy to connect multiple amplifiers. The secondary input is a 100 V line input to connect the amplifier to a 100 V loudspeaker line to provide more power in remote locations.

Gain or level control is located on the rear of the unit to avoid accidental setting change. A meter with LED bar shows the output level.

The amplifier has a 70 V or 100 V output for constant voltage loudspeaker systems, and a low impedance output for 8 ohm loudspeaker loads.

Controls and indicators

Front

- Power on LED
- LED VU meter for master output (LEDs for -18, -12 -6, -3, 0 dB)
- On/off button

Back

- Level control

Interconnections

See Technical Specifications.

Certifications and Approvals

Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

Installation/Configuration Notes

Rear view

Parts Included

Quantity	Components
1	PLE-1P120-EU or PLE-1P240-EU Plena Mixer Amplifier
1	Power cord
1	Manual
1	Set of 19”mounting brackets

Technical Specifications

Electrical

Mains power supply	
Voltage	115 - 230 VAC ±10%, 50/60 Hz
Inrush Current PLE-1P120-EU	4.5/9 A (230/115 VAC)
Inrush Current PLE-1P240-EU	9/18 A (230/115 VAC)
Power consumption PLE-1P120-EU	380 VA
Power consumption PLE-1P240-EU	760 VA

Battery power supply	
Voltage	24 VDC, +10% / -15%
Current PLE-1P120-EU	5.5 A
Current PLE-1P240-EU	11 A
Charge current	0.5 ADC
Charge float voltage	27.3 VDC

Power consumption (PLE-1P120-EU)	
Max power (mains)	227 W
-6dB (mains)	130 W
Idle (mains)	12 W
Max power (24 V)	7 A (150 W)
-6 dB (24 V)	4.4 A (194 W)
Idle (24 V)	0.3 A (7 W)

Power consumption (PLE-1P240-EU)	
Max power (mains)	451 W
-6dB (mains)	244 W
Idle (mains)	16 W
Max power (24 V)	12 A (290 W)
-6 dB (24 V)	8.1 A (194 W)
Idle (24 V)	0.3 A (7 W)

Performance	
Max / rated power PLE-1P120-EU	180 W / 120 W
Max / rated power PLE-1P240-EU	360 W / 240 W
Power reduction on backup power	-1 dB
Frequency response	50 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	<1% @ rated output power, 1 kHz

Inputs	
Connector 1	3-pin XLR, balanced
Sensitivity	1 V
Impedance	20 kohm
Connector 2	3-pin Euro style, balanced
Sensitivity	100 V
Impedance	300 kohm
Dynamic range	100 dB
CMRR (mic)	>40 dB (50 Hz to 20 kHz)

Loudspeaker outputs 70 V / 100 V	
Connector	Euro style pluggable screw terminals

Loudspeaker output 8 ohm	
Connector	Euro style pluggable screw terminals
PLE-1P120-EU	31 V (120 W)
PLE-1P240-EU	44 V (240 W)

Mechanical	
Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Mounting	Stand-alone, 19" rack
Color	Charcoal
Weight (PLE-1P120-EU)	Approx. 10.5 kg
Weight (PLE-1P240-EU)	Approx. 12.5 kg

Environmental	
Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%
Acoustic noise level of fan	<40 dB SPL @ 1 m temperature controlled

Ordering Information

PLE-1P120-EU Plena Amplifier 120 W, 100V / 70V power amplifier	**PLE-1P120-EU**
PLE-1P240-EU Plena Amplifier 240 W, 100V / 70V power amplifier	**PLE-1P240-EU**

1

PLE-2CS Plena Two-zone Call Station

Features

- **Modern two-zone call station for the PLE series**
- **Selectable gain**
- **Speech filter and limiter**
- **Output level control**
- **Loop-through option for up to 8 call stations**
- **LED indications for zone selection, busy, and power on**

The Plena two-zone call station is a modern, high-quality call station with a stable metal base design, a flexible microphone stem and a unidirectional condenser microphone. It can make calls to selected zones in a public address system built with the PLE series two-zone mixer and mixer amplifiers. In addition to tabletop use, the Plena design allows neat flush-mounting in desktops.

Functions

Gain, speech filter and intelligibility

This call station features selectable gain, a selectable speech filter, and a limiter for improved intelligibility.

Range

The call station has a balanced line level output, giving it a maximum range of 200 meters from the mixer, when using CAT-5 extension cables.

Loop-through

With the loop-through RJ-45 connector, it is possible to daisy chain multiple call stations.

Priority

The priority is automatic i.e. the call station nearest the mixer has priority and can override a call station further from the mixer. When a call is being made by a higher priority call station, a yellow light will display on the lower priority call stations.

Dip switches and status

DIP switches at the base of the call station select different microphone gain levels, chimes, and the speech filter. A service accessible rotary control provides microphone level attenuation. LEDs on the call station show which zones have been selected. An additional LED give visible feedback on the active state of the microphone and the system:

- Green flashing means standby (chime is sounding)
- Green indicates microphone active
- Amber indicates a higher priority call

Controls and indicators

- 2 x status LEDs
- PTT key
- 2 x zone selection keys
- 2 x zone selection LEDs
- DIP switches
- Rotary volume control

Interconnections

- 2 x RJ45 jacks

Certifications and Approvals

Region	Certification
Europe	CE
Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Parts Included

Quantity	Components
1	PLE-2CS Plena two-zone call station
1	Cable terminated with a lockable CAT-5 connector

Technical Specifications

Electrical	
Voltage range	24 VDC supplied by PLE mixer amplifier or mixer
Current consumption	<30 mA
Performance	
Nominal sensitivity	85 dB SPL (gain preset 0 dB)
Nominal output level	700 mV
Input sound level (max)	110 dB SPL
Gain preset	-15 / 0 / +6 dB

Limiter threshold	2 V
Compression ratio limiter	1:20
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	25 dB SPLA
Frequency response	100 Hz to 16 kHz
Speech filter	-3 dB at 315 Hz, high-pass, 6 dB/oct
Output impedance	200 ohm
Selections	
Chimes	6
Mechanical	
Base dimensions (H x W x D) without microphone	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Stem length with micro-phone	390 mm (15.35 in)
Cable length	5 m (16.4 ft)
Weight	Approx. 1 kg (2.2 lb)
Mounting	Standalone
Color	Charcoal with silver
Environmental	
Operating temperature	-10 ºC to +45 ºC (14 ºF to +113 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering Information

PLE-2CS Plena Two-zone Call Station
metal base design, a flexible microphone stem with a unidirectional condenser micro-phone and zone selection

PLE-2CS

1

PLE-1CS Plena All-Call Call Station

Features

- **PTT-key for calls for activation**
- **Momentary or toggle**
- **Green LED, indicating microphone active**
- **Stable metal base design with fixed 2 m cable and lockable Euro style connector**
- **Phantom powered by amplifier**

The Plena tabletop microphone is a stylish, high-quality tabletop unidirectional condenser microphone, intended for making calls in a public address system. Its heavy metal base and rubber feet ensure stability on any flat surface. The special design also allows the unit to be neatly flush-mounted in desktops.

Functions

The PTT-key (press-to-talk), not only switches on the microphone, but also provides priority contacts, that are compatible with the Plena range of amplifiers. The switching characteristic of the PTT-key can be configured internally for PTT-mode (on as long as pressed) or toggle-mode (press to switch on, press again to switch off).

It is equipped with a fixed, flexible 2 m cable and a 5-pin Euro style connector for the balanced signal and the priority contact. If the priority contact is not required, the microphone can be connected to amplifiers with 3-pin Euro style connector.

A green LED indicates when the microphone is active.

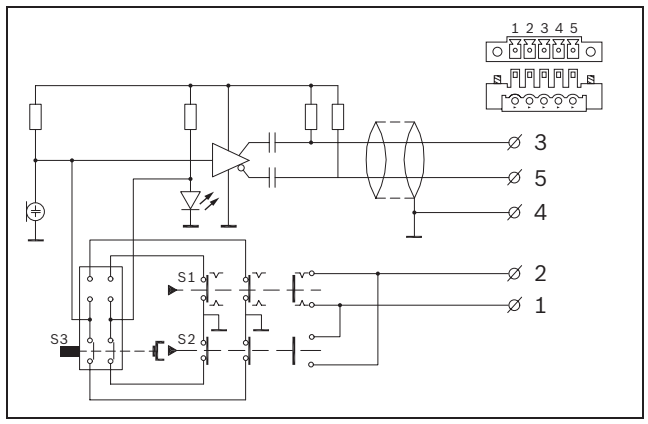
Controls and indicators

- PTT-key
- PTT status LED

Certifications and Approvals

Region	Certification	
Europe	CE	
	Safety	acc. to EN 60065
	Immunity	acc. to EN 55103-2
	Emission	acc. to EN 55103-1

Installation/Configuration Notes



Circuit diagram

Parts Included

Quantity	Component
1	PLE-1CS PLENA All Call Call Station

Technical Specifications

Electrical

Phantom power supply	
Voltage range	12 to 48 V
Current consumption	<8 mA

Performance

Sensitivity	0.7 mV @ 85 dB SPL (2 mV/Pa)
Maximum input sound level	110 dB SPL
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	28 dB SPLA (S/N 66 dBA ref. 1 Pa)
Frequency response	100 Hz to 16 kHz
Output impedance	200 ohm

Mechanical

Base dimensions (H x W x D)	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg (2.2 lb)
Color	Charcoal with silver
Stem length with mic.	390 mm (15.35 in)
Cable length	2 m (6.56 ft)

Environmental

Operating temperature	-10 ºC to +45 ºC (14 ºF to +113 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering Information

PLE-1CS Plena All-Call Call Station **PLE-1CS**
metal base design with fixed 2 m cable and lockable Euro style connector

1

PLE-1SCS Plena Easy Line Heavy Duty Call Station

Features

- **Sturdy microphone for demanding applications**
- **PTT-key for calls for activation**
- **Momentary or toggle**
- **Green LED, indicating microphone active**
- **Stable metal base design with fixed 2 m (6.56 ft) cable and lockable Euro style connector**
- **Phantom powered by amplifier**

The Plena tabletop microphone is a heavy-duty, high-quality tabletop unidirectional dynamic microphone, intended for making calls in a public address system. Its heavy metal base and rubber feet ensure stability on any flat surface. The special design also allows the unit to be neatly flush-mounted in desktops.

Functions

The PTT-key (press-to-talk), not only switches on the microphone, but also provides priority contacts, that are compatible with the Plena range of amplifiers. The switching characteristic of the PTT-key can be configured internally for PTT-mode (on as long as pressed) or toggle-mode (press to switch on, press again to switch off).

It is equipped with a fixed, flexible 2 m (6.56 ft) cable and a 5-pin Euro style connector for the balanced signal and the priority contact. If the priority contact is not required, the microphone can be connected to amplifiers with 3-pin Euro style connector.

A green LED indicates when the microphone is active.

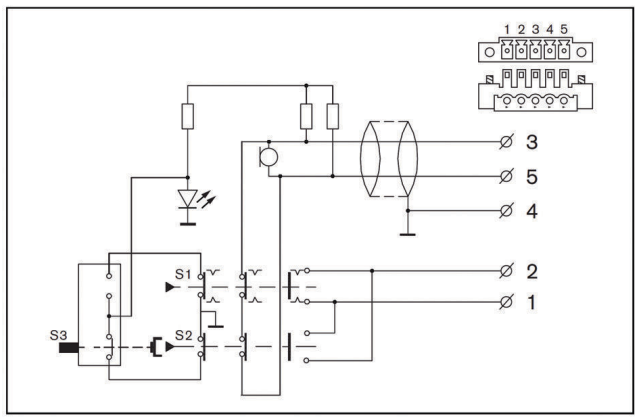
Controls and indicators

- PTT-key
- PTT status LED

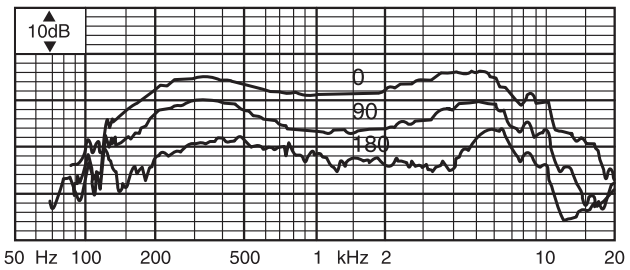
Certifications and Approvals

Region	Certification	
Europe	CE	
	Safety	according to EN 60065
	Immunity	according to EN 55103-2
	Emission	according to EN 55103-1

Installation/Configuration Notes



Circuit diagram



Frequency response

Parts Included

Quantity	Component
1	PLE-1SCS Plena Easy Line Heavy Duty Call Station

Technical Specifications

Electrical

Phantom power supply	
Voltage range	12 to 48 V
Current consumption	<8 mA

Performance	
Polar pattern	Uni-directional
Frequency response	100 Hz to 15 kHz
Sensitivity	1.2 mV/pa +/- 4 dB
Rated output impedance	500 ohm
Maximum input sound level	110 dB SPL
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	25 dB SPLA (S/N 69 dBA ref. 1 Pa)
Mechanical	
Base dimensions (H x W x D)	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg (2.2 lb)
Color	Charcoal with silver
Stem length with mic.	390 mm (15.35 in)
Cable length	2 m (6.56 ft)
Environmental	
Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering Information

PLE-1SCS Plena Easy Line Heavy Duty Call Station **PLE-1SCS**
metal base design with fixed 2 m cable and lockable Euro style connector

1

PLE-WP3S2Z-EU Wall Panel

Features

- **Can be used for all Plena Easyline (PLE) mixer-amplifiers**
- **Remote selection of three music source inputs**
- **Remote zone selection**
- **Perfect companion to Bosch volume controls**
- **Daisy- chain of multiple wall panels**
- **Powered through the Plena system**

The Plena PLE-WP3S2Z-EU Wall Panel is used to remotely select a music source and activate or deactivate zones of a Plena PLE audio mixer or mixer amplifier.

Functions

Remote zone and Input source control

Two zones and three music input sources can be controlled from a remote location by selecting the individual switches.

Indicators

The ON status of each zone and selected music source is indicated by an LED.

Connections and settings

With the use of CAT-5 cable and RJ-45 connector the PLE-WP3S2Z-EU Wall Panel can be easily and quickly connected to the PLE series mixer or mixer amplifier. Settings are not required.

Daisy chain / Remote locations

Maximum four PLE-WP3S2Z-EU Wall Panels can be daisy chained to remotely control a PLE series mixer or mixer amplifier.

Certifications and Approvals

Region	Certification	
Europe	CE	
	Safety	acc. to EN 60065
	EMC emission	acc. to EN 55103-1
	EMC immunity	acc. to EN 55103-2

Installation/Configuration Notes

The Wall Panel is installed to the mixer or mixer-amplifier via standard CAT-5 cable with RJ-45 connector. The maximum cable distance is 200 m. The design and color are unobtrusive in any interior. Ease of installation, operation and reliability is optimized in the design. The appearance is matched to the Bosch Loudspeaker Volume Controls.

The wall panel buttons have the same function as the corresponding buttons of the Plena mixer front panel

Parts Included

1	PLE-WP3S2Z-EU Wall Panel
1	Quick Reference Card

Technical Specifications

Electrical

Power supply	
Voltage range	5 VDC, supplied by the connected amplifier
Current consumption (typical)	<50 mA
Connectors	
to (mixer) amplifier	1 x RJ-45
Loop through	1 x RJ-45

Mechanical

Dimensions (H x W x D)	87 x 87 x 21 mm (3.43 x 3.43 x 0.83 in)
Weight	Approx. 0.35 kg (0.77 lb)
Color	White
Label text color	Silver

Environmental

Operating temperature	-10 ºC to +45 ºC (14 ºF to +113 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering Information

PLE-WP3S2Z-EU Wall Panel **PLE-WP3S2Z-EU**
remotely select a music source and activate or deactivate zones of a Plena PLE audio mixer or mixer amplifier

1

PLE-1MExx0-xx Plena Mixer Amplifier

Features

- **4 microphone / line inputs, plus music source input**
- **Announcement only output, 3-wire volume override**
- **Wide range of output power (60, 120 and 240 Watts)**
- **2-tone chime**

These Plena Economy mixer amplifiers are professional public address units with modern state-of-the-art features. They are easy to use, taking the complexity away from the user and putting it where it belongs, inside the equipment. Providing a crisp call or clear music is as easy as turning on the radio. Offering the essentials of public address in an affordable package.

Functions

Microphone and line inputs

All Mic/line inputs can be switched between microphone level and line level sensitivity. The inputs are balanced but can be used unbalanced. Phantom power can be switched on to provide power to condenser microphones.

Input channel 1 can take priority over all other microphone and music inputs:

- Input 1 can be activated by contact closure on the PTT (push to talk). A 2-tone chime can be configured to precede an announcement.

Music input

A separate music input is available with its volume control.

Personalized settings

More unique features are available such as a detachable label where the user can write the names for inputs. This label can then be mounted on the front, protected by the clear window.

Another useful feature is to indicate preferred settings on the front panel by inserting colored pins at the preset levels of all knobs. You can then instruct a user to set all the controls to the silver pins to configure the system for their particular use. A second user can set all controls to the red pins for their configuration.

Power

The mixer amplifiers come in 60, 120 and 240 Watt output power. This power is directly available on 100 V (70 V for US versions) constant voltage connections and on a low impedance connection for a 4 ohm load. Moreover, the amplifiers have a separate 100 V (70 V for US versions) call-only output channel for addressing areas where only priority announcements are required. The call-only output can also be used for 3-wire remote, volume control override.

Output status

An LED VU meter monitors the master output. A headphone socket, below the VU meter, provides the mixer output. For total reliability and ease of use, a limiter is integrated into the output stage to restrict output if the user applies too much signal.

Controls and indicators

Front

- On/off switch
- Power on LED
- LED VU meter for master output (LEDs for -18, -12 -6, -3, 0 dB)
- Master volume knob
- Four volume knobs for microphone inputs
- Volume knob for background music
- Knob for treble level
- Knob for bass level
- Headphone socket

Back

- Dip switches

Certifications and Approvals

Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

Parts Included

Quantity	Components
1	PLE-1MExx0-xx Plena Mixer Amplifier
1	Power cord
1	Manual
1	Plena Easy Line CD

Technical Specifications

Electrical

Mains power supply	
Voltage -EU versions	230 VAC ±10%, 50/60 Hz (reduced power at lower mains voltage)
Voltage -CN versions	220 VAC ±10%, 50/60 Hz (reduced power at lower mains voltage)
Voltage -US versions	120 VAC ±10%, 50/60 Hz (reduced power at lower mains voltage)
Inrush current PLE-1ME060-EU or -CN	5 A
Inrush current PLE-1ME120-EU or -CN	10 A
Inrush current PLE-1ME240-EU or -CN	12 A
Inrush current PLE-1ME060-US	10 A
Inrush current PLE-1ME120-US	20 A
Inrush current PLE-1ME240-US	24 A

Power consumption	
PLE-1ME060-xx	200 VA
PLE-1ME120-xx	400 VA
PLE-1ME240-xx	800 VA

Performance	
Frequency response (Line)	60 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Frequency response (Mic.)	70 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	<1% @ rated output power, 1 kHz
Bass Control	Max. ± 8 dB
Treble Control	Max. ± 8 dB

Mic./Line input	**4 x**
Input 1 (push-to-talk contact with priority)	5-pin Euro style, balanced, phantom
Input 2	3-pin Euro style, balanced, phantom
Input 3 and 4	TRS Jack (1/4, 6.3mm) balanced
Sensitivity	1 mV (mic.); 300 mV (line)
Impedance	>1 kohm (mic.); >5 kohm (line)
Dynamic range	93 dB
S/N (flat at max volume)	>63 dB (mic.); >70 dB (line)
S/N (flat at min volume/muted)	>75 dB
CMRR (mic.)	>40 dB (50 Hz to 20 kHz)
Headroom	>25 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm (mic.)

Music input	
Connector	Cinch, stereo converted to mono
Sensitivity	200 mV
Impedance	22 kohm
S/N (flat at max volume)	>75 dB

Music input	
S/N (flat at min volume/muted)	>80 dB
Headroom	>25 dB

Loudspeaker output	
Connector	Screw terminal, floating
Max / rated PLE-1ME060-xx	90 W / 60 W
Max / rated PLE-1ME120-xx	180 W / 120 W
Max / rated PLE-1ME240-xx	360 W / 240 W

Loudspeaker output 4 ohm	
Connector	Screw terminal, floating
PLE-1ME060-xx	15.5 V (60 W)
PLE-1ME120-xx	22 V (120 W)
PLE-1ME240-xx	31 V (240 W)

Mechanical	
Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Mounting	Stand-alone, 19" rack
Color	Charcoal

Weight	
PLE-1ME060-xx	Approx. 6.5 kg
PLE-1ME120-xx	Approx. 8.9 kg
PLE-1ME240-xx	Approx. 10.5 kg

Environmental	
Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%
Acoustic noise level of fan (PLE-1ME240-xx)	<48 dB SPL @ 1 m

Ordering Information

PLE-1ME060-EU Plena Mixer Amplifier 60 W, 4-mic. and BGM input mixer amplifier	**PLE-1ME060-EU**
PLE-1ME120-EU Plena Mixer Amplifier 120 W, 4-mic. and BGM input mixer amplifier	**PLE-1ME120-EU**
PLE-1ME240-EU Plena Mixer Amplifier 240 W, 4-mic. and BGM input mixer amplifier	**PLE-1ME240-EU**

1

LBB 1925/10 Plena System Pre-Amplifier

Features

- **Six-zone system pre-amplifier, with single or dual channel operation**
- **Two input channels for call stations**
- **Universal input for microphone/line, with speech optimized tone control**
- **Three inputs for BGM selection and music optimized tone control**
- **Front panel zone selection for BGM and call station zone selection for calls**
- **PC and trigger inputs for automated calls, alarm tones and chimes to selected zones**

The Plena system pre-amplifier is a versatile, high-performance unit with call and mono BGM (background music). It fulfills a wide variety of public address requirements at a surprisingly low cost. It can provide dual channel operation for simultaneous calls and BGM for up to six different zones, using two Plena amplifiers.

Functions

The call channel provides two inputs for the Plena call stations, LBB 1941/00 (all-call) or LBB 1946/00 (six-zone), with loop-through capability, and universal, balanced input. One is a 3-pin XLR connector for microphone or line level (selectable), and the other is a 5-pin DIN-connector with all-call priority contact, which may also be used to start one of the available chime attention signals.

The microphone input has a selectable speech filter for improved intelligibility, a volume control, and bass and treble tone controls with shelving characteristics optimized for speech. The call channel is available on the balanced XLR master output.

The BGM channel provides three inputs on stereo cinch-connectors, converted to mono, with front panel selection, volume control and bass and treble tone controls with shelving characteristics optimized for music. The BGM channel has a direct output on balanced XLR for dual channel operation. It can also feed the master output, with the lowest priority, for single channel operation. Zone selector switches on the front panel control the BGM routing. An overload protected 24 VDC output provides power for driving external relays, often making an external power supply unnecessary.

An emergency/telephone input with signal level detector (VOX) and volume preset has the highest priority to all zones. Two trigger inputs (contact closure) activate alarm or time signals to pre-selected zones. Many different chime tones are available. A PC audio input with RS-232 control provides software controlled zone configuration, or automatic messaging in combination with the LBB 1965/00 Plena Message Manager. There are six levels of priority available for BGM, microphone, call stations, trigger inputs and emergency input. A set of relays directs the amplifier output(s) to different loudspeaker groups (zone switching).

Each zone has a tri-state control on the front panel that can turn it off, switch it to the call channel, or to the BGM channel. The all-call microphone input and emergency activation override the call station selection on the call channel. Each zone has separate priority overrides with preset volume levels. This assures an appropriate message volume, independent of any local volume settings, such as for BGM. Both three-wire and four-wire override schemes are supported. An override also activates a voltage-free contact (call-active) available for external control and monitoring. The master output channel, or one of the input channels, can be monitored through the headphone connector and/or the LED VU-meter.

Controls and indicators

Front

- LED power meter
- Power on LED
- Call active LED
- Three knobs for mic/line volume, treble, and bass levels
- Three knobs for BGM volume, treble, and bass levels
- BGM source selection knob
- Six zone-selections keys
- Six zone status LEDs
- On/off switch

Back

- EMG input volume control
- Mains voltage switch

Interconnections

Front

- Headphone jack

Back

- One (DIN or XLR) Mic/line input
- Two (DIN/DIN) call station inputs

- PC audio (cinch) input
- Priority input
- Master (XLR) output
- BGM (XLR) output
- Emergency signal input
- Two trigger inputs
- RS-232 (DE-9)
- Three (cinch) CD, tape, aux inputs
- Six 100 V speaker outputs
- 24 VDC output
- 24 VDC input
- Three control inputs
- Ground screw
- IEC mains socket

Certifications and Approvals

Region	Certification
Europe	CE
Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Installation/Configuration Notes

LBB 1925/10 rear view

Parts Included

Quantity	Component
1	LBB 1925/10 PLENA System Pre-amplifier
1	Power cord
1	Set of 19”mounting brackets
1	Plena CD
1	Installation and User Instructions

Technical Specifications

Electrical

Mains power supply	
Voltage	230/115VAC, ±15%, 50/60 Hz
Current inrush	230/115 VAC, 1.5/3 A
Max power consumption	25 VA
Battery power supply	
Voltage	24 VDC, +10% / -15%
Mains power supply	
Current max	1 A
Performance	
Frequency response	50 Hz to 20 kHz (+1 / -3 dB)
Distortion	<0.5%
Bass control	±10 dB @ 100 Hz
Treble control	±10 dB @ 10 kHz
Channel separation	>70 dB @ 1 kHz
Priority mute	>40 dB
Dynamic range	100 dB
Mic/line input	1 x
Connectors	5-pin DIN, 3-pin XLR, balanced, with phantom power
Sensitivity	1 mV (mic), 200 mV (line)
Impedance	>1 kohm (mic); >5 kohm (line)
S/N (flat at max volume)	>63 dB (mic); >70 dB (line)
S/N (flat at min volme/muted)	>75 dB
CMRR	>40 dB (50 Hz – 20 kHz)
Headroom	>25 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm, (mic mode only)
Line input	3 x
Connector	Cinch, stereo converted to mono, unbalanced
Sensitivity	200 mV
Impedance	22 kohm
S/N (flat at max volume)	>70 dB
S/N (flat at min volume/muted)	>75 dB
Headroom	>25 dB
Master output	1 x
Connector	3-pin XLR, balanced
Nominal level	1 V
Impedance	<100 ohm
Tape output	1 x
Connector	Cinch, 2 x mono
Nominal level	350 mV
Impedance	<1 kohm
Headphone output	1 x
Connector	6.3 mm jack stereo, signal mono
Nominal level	3 V
Impedance	<100 ohm
Zone relays	5 A
Contacts voltage	250 V
Contacts current	8 A
Interconnection input / emergency	1 x
Connector	3-pin XLR, balanced
Sensitivity	200 mV (interconnection), 100 mV to 1 V adjustable (emergency)
Impedance	>10 kohm

Mains power supply	
VOX threshold	45 mV (emergency)
Interconnection output	1 x
Connector	3-pin XLR, balanced
Nominal level	200 mV
Impedance	<100 ohm
Relay contacts	30 V, 1 A
DC supply output voltage	24 V, 250 mA max
Mechanical	
Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Weight	Approx. 5 kg
Mounting	Standalone, 19" rack
Color	Charcoal
Environmental	
Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering Information

LBB 1925/10 Plena System Pre-Amplifier **LBB1925/10**
6-zone, 2-channel distribution system unit with call and BGM (background music)

LBB 1941/00 Plena Call Station

Features

- **Stylish all-call call station, intended for LBB 1925/10 system pre-amplifier**
- **Unidirectional condenser microphone on flexible stem**
- **Momentary PTT-key for calls**
- **Selectable gain, speech filter, and limiter for improved intelligibility**
- **Stable metal base design**
- **Fixed 5 m cable and loop-through connector for additional call stations**

The Plena Call Station is a stylish, high-quality call station with a stable metal base design, a flexible microphone stem, and a unidirectional condenser microphone. Its purpose is to make calls to all zones (all-call) in a public address system built around the LBB 1925/10 system pre-amplifier. In addition to tabletop use, the special design enables the unit to be neatly flush-mounted in desktops.

Functions

A green LED on the call station gives visible feedback on the active state of the microphone.

This call station features selectable gain, a selectable speech filter, and a limiter for improved intelligibility, even when the speaker moves in front of the microphone.

The call station provides a balanced line-level output, and can be up to 500 m away from the amplifier using extension cables. The LBB 1925/10 can assign different priority levels, and pre and post-call chimes to this call station.

Controls and indicators

- PTT-key
- PTT status LED

Interconnections

- Cable with DIN connector

Certifications and Approvals

Region	Certification
Europe	CE
Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Parts Included

Quantity	Component
1	LBB 1941/00 Plena Call Station
1	5 m cable terminated with a lockable 8-pin DIN connector
1	Loop through 8-pin DIN socket to add an additional call station LBB 1941/00 or LBB 1946/00

Technical Specifications

Electrical

Power Supply	
Voltage range	18 to 24 V (24 V supplied by LBB 1925/10)
Current consumption	<30 mA
Performance	
Nominal sensitivity	85 dB SPL (gain preset 0 dB)
Nominal output level	700 mV
Input sound level (max)	110 dB SPL
Gain preset	+6 / 0 / -15 dB
Limiter threshold	2 V
Compression ratio limiter	1:20
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	25 dB SPLA
Frequency response	100 Hz to 16 kHz
Speech filter	-3dB @ 315 Hz, high-pass, 6 dB/oct
Output impedance	200 ohm
Mechanical	
Base dimensions	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg
Color	Charcoal with silver
Stem length with mic	390 mm (15.35 in)
Cable length	5 m (16.4 ft)

1

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering Information

LBB 1941/00 Plena Call Station **LBB1941/00**
all-call call station for LBB1925/10, a flexible microphone, a flexible microphone stem, and a unidirectional condenser microphone

LBB 1946/00 Plena Six-zone Call Station

Features

- **Stylish six-zone call station, intended for LBB 1925/10 system pre-amplifier**
- **Unidirectional condenser microphone on flexible stem**
- **Six zone selection keys, all-call key, and momentary PTT-key for calls**
- **Selectable gain, speech filter, and limiter for improved intelligibility**
- **Selectable priority levels and different pre and post-call chimes**
- **LED indications for zone selection, system activity, and call station status**

The Plena Six-zone Call Station is a stylish, high-quality call station with a stable metal base design, a flexible microphone stem, and a unidirectional condenser microphone. It can make calls to selected zones (one to six and all-call) in a public address system built around the LBB 1925/10 system pre-amplifier. In addition to tabletop use, the special design enables the unit to be neatly flush-mounted in desktops.

Functions

This call station features selectable gain, a selectable speech filter, and a limiter for improved intelligibility. The call station has a balanced line level output, making it possible to position it up to 100 m away from the LBB 1925/10, using extension cables.

Dipswitches on the bottom of the call station configure different pre and post-call chimes, as well as the priority level. LEDs on the call station indicate selected zones, and an additional, two-color LED gives visible feedback on the active state of the microphone and the system. Green indicates microphone on or chime active (flashing LED); amber indicates that the system is occupied by a source with a higher priority or operation error (flashing LED).

Controls and indicators

- PTT-key
- PTT status LED
- Six zone selection keys
- Six zone selection LEDs
- All-call key
- All-call status LED
- Eight DIP switches

Interconnections

- Cable with DIN connector

Certifications and Approvals

Region	Certification	
Europe	CE	
Safety		acc. to EN 60065
Immunity		acc. to EN 55103-2
Emission		acc. to EN 55103-1

Parts Included

Quantity	Component
1	LBB 1946/00 Plena Six-zone Call Station
1	5 m cable terminated with a lockable 8-pin DIN connector
1	Loop through 8-pin DIN socket to add an additional call station LBB 1941/00 or LBB 1946/00

Technical Specifications

Electrical

Power Supply	
Voltage Range	18 to 24 V (24 V supplied by LBB 1925/10)
Current consumption	<30 mA
Performance	
Nominal sensitivity	85 dB SPL (gain preset 0 dB)
Nominal output level	700 mV
Maximum input sound level	110 dB SPL
Gain preset	+6 / 0 / -15 dB
Limiter threshold	2 V
Compression ratio limiter	1:20
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	25 dB SPLA

1

Power Supply	
Frequency response	100 Hz to 16 kHz
Speech filter	-3dB @ 315 Hz, high-pass, 6 dB/oct
Output impedance	200 ohm
Selections	
Chimes	18 different combinations
Priorities	2 different priorities
Mechanical	
Base dimensions (H x W x D)	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg (2.2 lb)
Color	Charcoal with silver
Stem length with mic	390 mm (15.35 in)
Cable length	5 m (16.4 ft)
Environmental	
Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering Information

LBB 1946/00 Plena Six-zone Call Station **LBB1946/00**
metal base design, a flexible microphone stem, and a unidirectional condenser microphone. It can make calls to selected zones (one to six and all-call).

LBB 1950/10 Plena Tabletop Unidirectional Condenser Microphone

Features

- **Stylish tabletop unidirectional condenser microphone on a flexible stem**
- **Phantom powered by amplifier**
- **Momentary or toggle PTT-key for calls with priority contact**
- **Green LED, indicating microphone active**
- **Stable metal base design with fixed 2 m cable and lockable DIN connector**
- **Separate DIN to XLR adapter**

The Plena tabletop microphone is a stylish, high-quality tabletop unidirectional condenser microphone, mainly intended for making calls in a public address system. Its heavy metal base and rubber feet ensure stability on any flat surface. The special design also allows the unit to be neatly flush-mounted in desktops.

Functions

The PTT-key (press-to-talk), not only switches on the microphone, but also provides priority contacts, that are compatible with the Plena range of amplifiers. The switching characteristic of the PTT-key can be configured internally for PTT-mode (on as long as pressed) or toggle-mode (press to switch on, press again to switch off).

It is equipped with a fixed, flexible 2 m cable and a 5-pin DIN connector for the balanced signal and the priority contacts. If the priority contacts are not required, the microphone can be connected to amplifiers with 3-pin XLR-inputs, using the DIN to XLR adapter.

A green LED indicates when the microphone is active.

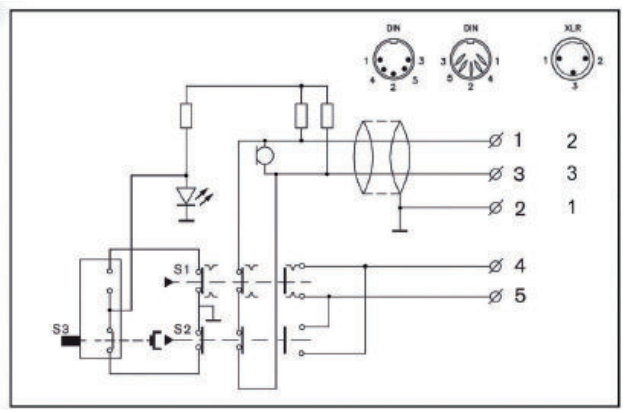
Controls and indicators

- PTT-key
- PTT status LED

Certifications and Approvals

Region	Certification	
Europe	CE	
Safety		acc. to EN 60065
Immunity		acc. to EN 55103-2
Emission		acc. to EN 55103-1

Installation/Configuration Notes



Circuit diagram

Parts Included

Quantity	Component
1	LBB 1950/10 PLENA Tabletop Unidirectional Condenser Microphone
1	DIN to XLR adapter

Technical Specifications

Electrical

Phantom power supply	
Voltage range	12 to 48 V
Current consumption	<8 mA
Performance	
Sensitivity	0.7 mV @ 85 dB SPL (2 mV/Pa)

Phantom power supply	
Maximum input sound level	110 dB SPL
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	28 dB SPLA (S/N 66 dBA ref. 1 Pa)
Frequency response	100 Hz to 16 kHz
Output impedance	200 ohm
Mechanical	
Base dimensions (H x W x D)	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg (2.2 lb)
Color	Charcoal with silver
Stem length with mic	390 mm (15.35 in)
Cable length	2 m (6.56 ft)
Environmental	
Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering Information

LBB 1950/10 Plena Tabletop Unidirectional Condenser Microphone tabletop unidirectional condenser microphone on a flexible stem.	**LBB1950/10**
Accessories	
LBC 1081/00 Microphone Cable length 100 m; 4 x 0.14 mm^2	**LBC1081/00**

LBB 1930/20 Plena Power Amplifier

Features

- **120 W power amplifier in a compact housing**
- **70 V / 100 V and 8 ohm outputs**
- **Dual inputs with priority switching**
- **100 V input for slave operation on 100 V speaker line**
- **Temperature controlled forced front to back ventilation, directly stackable.**
- **Mains, battery back-up and pilot tone supervision**
- **EN 60849 compliant**

The LBB 1930/20 is a powerful 120 W power amplifier in a 2U high 19” case for rack mounting or tabletop use. LEDs on the front panel show the status of the amplifier: power, audio output level, and supervised functions. This high-performance unit fulfills a wide range of public address requirements at a surprisingly low cost.

Functions

Dependability

The amplifier is protected against overload and short circuits. A temperature-controlled fan ensures high reliability at high output levels and low acoustic noise at lower output levels. An overheat protection circuit switches off the power stage and activates an LED on the front panel, if the internal temperature reaches a critical limit due to poor ventilation or overload.

The unit operates both on mains power and on a 24 V battery power supply for emergency back up, with automatic switchover.

For emergency and evacuation use, the following functions are monitored: mains presence, battery present, pilot tone presence, amplifier operation. Front panel LEDs indicate the status of supervised functions. The LEDs of pilot tone supervision and battery status can be switched off for general public address use. Failsafe (normally energized) relays are provided for each supervised function. These relays are always active regardless of the switches on the rear panel.

Input

The system has two balanced inputs with priority control, each with a loop-through facility. This makes it easy to connect remote systems that require priority control. An additional 100 V line input is provided to connect the amplifier to a 100 V loudspeaker line to provide more power to remote locations.

Gain or level control is located on the rear of the unit to avoid accidental setting change. A meter with LED-bar shows the output level.

Output

The amplifier has 70 V and 100 V outputs for constant voltage loudspeaker systems, and a low impedance output for 8 ohm loudspeaker loads.

The LBB 1930/20 has two separate priority controlled 100 V outputs for zones that only need announcements made via the priority input, and for zones that will not receive announcements made via the priority input.

Controls and indicators

Front

- Meter (LED's for -20, -6, 0 dB and Power ON)
- Battery operation indicator
- Overheat indicator

Back

- Level control input 1
- Level control input 2
- Power button
- Mains switch

Interconnections

Back

- Priority line input 1 (XLR/balanced)
- Line loop-through 1 (XLR/balanced)
- Program line input 2 (XLR/balanced)
- Line loop-through 2 (XLR/balanced)
- Priority controlled loudspeaker output terminals
- 24 VDC power supply terminal
- Three loudspeaker direct output terminals
- Two 100 V slave input terminals
- Input 2 enable control terminal
- Input 1 priority control terminal
- Earth connection screw
- Mains socket

Certifications and Approvals

Region	Certification
Europe	CE
Poland	CNBOP

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1
Emergency	acc. to EN 60849

Parts Included

Quantity	Component
1	LBB 1930/20 Plena Power Amplifier
1	Power cord
1	Set of 19" mounting brackets
1	Installation and User Instructions
1	Cable with XLR connector

Technical Specifications

Electrical

Mains power supply	
Voltage	230 VAC ±10%, 50/60 Hz
Inrush current	8 A
Max power consumption	400 VA
Battery power supply	
Voltage	24 VDC +15% / -15%
Current max	6 A
Performance	
Output power (rms/maximum)	120 / 180 W
Power reduction on backup power	-1 dB
Frequency response	50 Hz to 20 kHz (+1 / -3 dB at -10 dB ref. rated output)
Distortion	<1% at rated output power, 1 kHz
S/N (flat at max volume)	>90 dB
Line inputs	2 x
Connector	3-pin XLR, balanced
Sensitivity	1 V
Impedance	20 kohm
CMRR	>25 dB (50 Hz to 20 kHz)
Gain	40 dB
100 V input	
Connector	Screw, unbalanced
Sensitivity	100 V
Impedance	330 kohm
Line loop-through output	2 x
Connector	3-pin XLR

Mains power supply	
Nominal level	1 V
Impedance	Direct connection to line input
Loudspeaker outputs	3 x
Connector	Screw, floating
Direct output	100 V, 70 V, 8 ohm
Priority only (from input 1)	100 V or 70 V internally selectable
Music (non-priority) only	100 V or 70 V internally selectable

Power consumption

Mains operation	
Max power	274 W
-3dB	193 W
-6dB	143 W
Pilot tone*	41 W
Idle	18 W
24 VDC operation	
Max power	7.0 A (168 W)
-3 dB	6.0 A (144 W)
-6 dB	4.3 A (103 W)
Pilot tone*	0.9 A (22 W)
Idle	0.1 A (2.4 W)

** 20 kHz -20dB with maximum loudspeaker load*

Mechanical

Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high, with feet)
Weight	Approx. 10.5 kg
Mounting	Standalone, 19”rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<48 dB SPL at 1 m (max output)

Ordering Information

LBB 1930/20 Plena Power Amplifier **LBB1930/20**
120 W power amplifier in a 2U high 19” case for rack mounting or tabletop use.

LBB 1935/20 Plena Power Amplifier

Features

- **240 W power amplifier in a 2U high housing**
- **70 V / 100 V and 8 ohm outputs**
- **Dual inputs with priority switching**
- **100 V input for slave operation on 100 V speaker line**
- **Temperature controlled forced front to back ventilation, directly stackable**
- **Mains, battery back-up, and pilot tone supervision**
- **EN 54-16 and EN 60849 compliant**

The LBB 1935/20 is a powerful 240 W power amplifier in a 2U high 19” case for rack mounting or tabletop use. LEDs on the front panel show the status of the amplifier: power, audio output level, and supervised functions. This high-performance unit fulfills a wide range of public address requirements at a surprisingly low cost.

Functions

Dependability

The amplifier is protected against overload and short circuits. A temperature-controlled fan ensures high reliability at high output levels and low acoustic noise at lower output levels. An overheat protection circuit switches off the power stage and activates an LED on the front panel, if the internal temperature reaches a critical limit due to poor ventilation or overload.

The unit operates both on mains power and on a 24 V battery power supply for emergency back up, with automatic switchover.

For emergency and evacuation use, the following functions are monitored: mains presence, battery present, pilot tone presence, amplifier operation. Front panel LEDs indicate the status of supervised functions. The LEDs of pilot tone supervision and battery status can be switched off for general public address use. Failsafe (normally energized) relays are provided for each supervised function. These relays are always active regardless of the switches on the rear panel.

Input

The system has two balanced inputs with priority control, each with a loop-through facility. This makes it easy to connect remote systems that require priority control. An additional 100 V line input is provided to connect the amplifier to a 100 V loudspeaker line to provide more power to remote locations.

Gain or level control is located on the rear of the unit to avoid accidental setting change. A meter with LED-bar shows the output level.

Output

The amplifier has 70 V and 100 V outputs for constant voltage loudspeaker systems, and a low impedance output for 8 ohm loudspeaker loads.

The LBB 1935/20 has two separate priority controlled 100 V outputs for zones that only need announcements made via the priority input, and for zones that will not receive announcements made via the priority input.

Controls and indicators

Front

- Meter (LED's for -20, -6, 0 dB and Power ON)
- Battery operation indicator
- Overheat indicator

Back

- Level control input 1
- Level control input 2
- Power button
- Mains switch

Interconnections

Back

- Priority line input 1 (XLR/balanced)
- Line loop-through 1 (XLR/balanced)
- Program line input 2 (XLR/balanced)
- Line loop-through 2 (XLR/balanced)
- Priority controlled loudspeaker output terminals
- 24 VDC power supply terminal
- Three loudspeaker direct output terminals
- Two 100 V slave input terminals
- Input 2 enable control terminal
- Input 1 priority control terminal
- Earth connection screw
- Mains socket

Certifications and Approvals

Region	Certification
Europe	CE
Poland	CNBOP

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1
Emergency	acc. to EN 54-16 / EN 60849

Parts Included

Quantity	Component
1	LBB 1935/20 Plena Power Amplifier
1	Power cord
1	Set of 19" mounting brackets
1	Installation and User Instructions
1	Cable with XLR connector

Technical Specifications

Electrical

Mains power supply	
Voltage	230 VAC, ±10%, 50/60 Hz
Inrush current	9 A
Max power consumption	760 VA
Battery power supply	
Voltage	24 VDC +15% / -15%
Current max	11 A
Performance	
Output power (rms/maximum)	240 / 360 W
Power reduction on backup power	-1 dB
Frequency response	50 Hz to 20 kHz (+1 / -3 dB at -10 dB ref. rated output)
Distortion	<1% at rated output power, 1 kHz
S/N (flat at max volume)	>90 dB
Line inputs	2 x
Connector	3-pin XLR, balanced
Sensitivity	1 V
Impedance	20 kohm
CMRR	>25 dB (50 Hz to 20 kHz)
Gain	40 dB
100 V input	
Connector	Screw, unbalanced
Sensitivity	100 V
Impedance	330 kohm
Line loop-through output	2 x
Connector	3-pin XLR

Mains power supply	
Nominal level	1 V
Impedance	Direct connection to line input
Loudspeaker outputs	3 x
Connector	Screw, floating
Direct output	100 V, 70 V, 8 ohm
Priority only (from input 1)	100 V or 70 V internally selectable
Music (non-priority) only	100 V or 70 V internally selectable

Power consumption

Mains operation	
Max power	451 W
-3dB	340 W
-6dB	244 W
Pilot tone*	55 W
Idle	16 W
24 V operation	
Max power	12.1 A (290 W)
-3 dB	11.4 A (274 W)
-6 dB	8.1 A (194 W)
Pilot tone*	1.7 A (41 W)
Idle	0.3 A (7 W)

** 20 kHz -20dB with maximum loudspeaker load*

Mechanical

Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high, with feet)
Weight	Approx. 12.5 kg
Mounting	Standalone, 19”rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<48 dB SPL at 1 m (max output)

Ordering Information

LBB 1935/20 Plena Power Amplifier **LBB1935/20**
240 W power amplifier in a 2U high 19” case for rack mounting or tabletop use.

LBB 1938/20 Plena Power Amplifier

Features

- **480 W power amplifier in a 3U high 19”housing**
- **70 V / 100 V and 8 ohm outputs**
- **Dual inputs with priority switching**
- **100 V input for slave operation on 100 V speaker line**
- **Temperature controlled forced front to back ventilation, directly stackable**
- **Mains, battery back-up, and pilot tone supervision**
- **EN 54-16 and EN 60849 compliant**

The LBB 1938/20 is a powerful 480 W power amplifier in a 3U high 19”case for rack mounting or tabletop use. LEDs on the front panel show the status of the amplifier: power, audio output level, and supervised functions. This high-performance unit fulfills a wide range of public address requirements at a surprisingly low cost.

Functions

Dependability

The amplifier is protected against overload and short circuits. A temperature-controlled fan ensures high reliability at high output levels and low acoustic noise at lower output levels. An overheat protection circuit switches off the power stage and activates an LED on the front panel, if the internal temperature reaches a critical limit due to poor ventilation or overload.

The unit operates both on mains power and on a 24 V battery power supply for emergency back up, with automatic switchover.

For emergency and evacuation use, the following functions are monitored: mains presence, battery present, pilot tone presence, amplifier operation. Front panel LEDs indicate the status of supervised functions. The LEDs of pilot tone supervision and battery status can be switched off for general public address use. Failsafe (normally energized) relays are provided for each supervised function. These relays are always active regardless of the switches on the rear panel.

Input

The system has two balanced inputs with priority control, each with a loop-through facility. This makes it easy to connect remote systems that require priority control. An additional 100 V line input is provided to connect the amplifier to a 100 V loudspeaker line, to provide more power to remote locations.

Gain or level control is located on the rear of the unit to avoid accidental setting change. A meter with LED-bar shows the output level.

Output

The amplifier has 70 V and 100 V outputs for constant voltage loudspeaker systems and a low impedance output for 8 ohm loudspeaker loads.

The LBB 1938/20 has two separate priority controlled 100 V outputs for zones that only need announcements made via the priority input, and for zones that will not get any announcements made via the priority input.

Controls and indicators

Front

- Meter (LED's for -20, -6, 0 dB and Power ON)
- Battery operation indicator
- Overheat indicator
- Air inlet for forced air cooling

Back

- Level control input 1
- Level control input 2
- Power button
- Mains switch

Interconnections

Back

- Priority line input 1 (XLR/balanced)
- Line loop-through 1 (XLR/balanced)
- Program line input 2 (XLR/balanced)
- Line loop-through 2 (XLR/balanced)
- Priority controlled loudspeaker output terminals
- 24 VDC power supply terminal
- Three loudspeaker direct output terminals
- Two 100 V slave input terminals
- Input 2 enable control terminal
- Input 1 priority control terminal
- Earth connection screw
- Mains socket

Certifications and Approvals

Region	Certification
Europe	CE
Poland	CNBOP

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1
Emergency	acc. to EN 54-16 / EN 60849

Parts Included

Quantity	Component
1	LBB 1938/20 Plena Power Amplifier
1	Power cord
1	Set of 19" mounting brackets
1	Installation and User Instructions

Technical Specifications

Electrical

Mains power supply	
Voltage	230 VAC, ±10%, 50/60 Hz
Inrush current	19 A
Max power consumption	2200 VA
Battery power supply	
Voltage	24 VDC +15% / -15%
Current max	30 A
Performance	
Output power (rms/maximum)	480 W / 720 W
Power reduction on backup power	-1 dB
Frequency response	50 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	<1% @ rated output power, 1 kHz
S/N (flat at max volume)	>90 dB
Line inputs	2 x
Connector	3-pin XLR, balanced
Sensitivity	1 V
Impedance	20 kohm
CMRR	>25 dB (50 Hz to 20 kHz)
Gain	40 dB
100 V input	
Connector	Screw, unbalanced
Sensitivity	100 V
Impedance	330 kohm
Line loop-through output	2 x
Connector	3-pin XLR
Nominal level	1 V
Impedance	Direct connection to line input
Loudspeaker outputs	3 x
Connector	Screw, floating
Direct output	100 V, 70 V, 8 ohm
Priority only (from input 1)	100V or 70 V internally selectable
Music (non-priority) only	100V or 70 V internally selectable

Power consumption

Mains operation	
Max power	990 W
-3dB	715 W
-6dB	510 W
Pilot tone*	110 W
Idle	25 W
24 VDC operation	
Max power	32 A (770 W)
-3 dB	26 A (625 W)
-6 dB	18 A (430 W)
Pilot tone*	3.8 A (91 W)
Idle	0.7 A (17 W)

** 20 kHz -20dB with maximum loudspeaker load*

Mechanical

Dimensions (H x W x D)	145 x 430 x 370 mm (19" wide, 3U high, with feet)
Weight	Approx. 25 kg
Mounting	Standalone, 19”rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<48 dB SPL @ 1 m (max output)

Ordering Information

LBB 1938/20 Plena Power Amplifier **LBB1938/20**
480 W power amplifier in a 3U high 19”case for rack mounting or tabletop use.

PLN-1P1000 Plena Power Amplifier

Features

- **1000 W power amplifier in a 3U high housing**
- **70 V / 100 V and 8 ohm outputs**
- **Dual inputs with priority switching**
- **100 V input for slave operation on 100 V speaker line**
- **Temperature-controlled forced front-to-back ventilation, directly stackable**
- **Mains, battery back-up and pilot tone supervision**

The PLN-1P1000 is a powerful 1000 W power amplifier in a 3U high 19” case for rack mounting or tabletop use. LEDs on the front panel show the status of the amplifier: power, audio output level, and supervised functions. This high-performance unit fulfills a wide range of public address requirements at a surprisingly low cost.

Functions

Dependability

The amplifier is protected against overload and short circuits. A temperature-controlled fan ensures high reliability at high output levels, and low acoustic noise at lower output levels. An overheat protection circuit switches off the power stage and activates an LED on the front panel, if the internal temperature reaches a critical limit due to poor ventilation or overload.

The unit operates both on mains power and on a 24 V battery power supply for emergency back up, with automatic switchover.

For emergency and evacuation use, the following functions are monitored: mains presence, battery present, pilot tone presence, amplifier operation. Front panel LEDs indicate the status of supervised functions. The of pilot tone supervision and battery status LEDs can be switched off for general public address use. Failsafe (normally energized) relays are provided for each supervised function. These relays are always active regardless of the switches on the rear panel.

Input

The system has two balanced inputs with priority control, each with a loop-through facility. This makes it easy to connect remote systems that require priority control. An additional 100 V line input can connect the amplifier to a 100 V loudspeaker line, to provide more power to remote locations.

Output

The amplifier has 70 V and 100 V outputs for constant voltage loudspeaker systems, and a low impedance output for 8 ohm loudspeaker loads. A meter with LED-bar shows the output level.

The PLN-1P1000 has two separate priority controlled 100 V outputs for zones that only need announcements made via the priority input, and for zones that will not get any announcements made via the priority input.

Controls and indicators

Front

- LED level meter
- Battery operation LED
- Overheat LED

Back

- Power button
- Mains switch

Interconnections

Back

- Priority line input 1 (XLR/balanced)
- Line loop-through 1 (XLR/balanced)
- Program line input 2 (XLR/balanced)
- Line loop-through 2 (XLR/balanced)
- Priority controlled loudspeaker outputs
- 24 VDC power supply terminal
- Three loudspeaker direct outputs
- Two 100 V slave inputs
- Input 1 enable control terminal
- Input 2 priority control terminal
- Earth connection screw
- Mains socket

Certifications and Approvals

Region	Certification	
Europe	CE	
Poland	CNBOP	
Safety		acc. to EN 60065
Immunity		acc. to EN 55103-2
Emission		acc. to EN 55103-1
Emergency		acc. to EN 54-16 / EN 60849

1

Parts Included

Quantity	Component
1	PLN-1P1000 Plena Power Amplifier
1	Power cord
1	Set of 19" mounting brackets
1	Installation and User Instructions

Technical Specifications

Electrical

Mains power supply	
Voltage	230 VAC, ±10%, 50/60 Hz
Inrush current	16 A
Max power consumption	2200 VA
Battery power supply	
Voltage	24 VDC +15% / -15%
Current max	48 A
Performance	
Output power (rms/maximum)	1000 W / 1500 W
Power reduction on backup power	-1 dB
Frequency response	50 Hz to 20 kHz (+1/-3 dB at -10 dB ref. rated output)
Distortion	<1% at rated output power, 1 kHz
S/N (flat at max volume)	>90 dB
Line inputs	2 x
Connector	3-pin XLR, balanced
Sensitivity	1 V
Impedance	20 kohm
CMRR	>25 dB (50 Hz to 20 kHz)
Gain	40 dB
100 V input	
Connector	Screw, unbalanced
Sensitivity	100 V
Impedance	330 kohm
Line loop-through output	2 x
Connector	3-pin XLR
Nominal level	1 V
Impedance	Direct connection to line input
Loudspeaker outputs	3 x
Connector	Screw, floating
Direct output	100 V, 70 V, 8 ohm
Priority only (from input 1)	100 V or 70 V internally selectable
Music (non-priority) only	100 V or 70 V internally selectable

Power consumption

Mains operation	
Max power	2200 W
-3dB	1472 W
-6dB	1058 W
Pilot tone*	345 W
Idle	115 W
24 VDC operation	
Max power	62 A (1500 W)
-3 dB	34 A (823 W)
-6 dB	25 A (597 W)
Pilot tone*	7.6 A (182 W)
Idle	1.5 A (36 W)

** 20 kHz -20dB with maximum loudspeaker load*

Mechanical

Dimensions (H x W x D)	145 x 430 x 430 mm (19" wide, 3U high, with feet)
Weight	Approx. 32 kg
Mounting	Standalone, 19” rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<48 dB SPL at 1 m (max output)

Ordering Information

PLN-1P1000 Plena Power Amplifier powerful 1000 W power amplifier in a 3U high 19” case for rack mounting or tab-letop use	**PLN-1P1000**

PLN-1LA10 Plena Loop Amplifier

Features

- **High power, current driven amplifier**
- **Two microphone/line inputs, one priority input (100 V)**
- **Selectable frequency range and tone controls**
- **Limiter and automatic gain control (AGC)**
- **Integrates in an EN 54-16 and EN 60849 compliant system**

The Plena Loop Amplifier is a cost-effective amplifier designed to drive a wire loop installed in the floor or ceiling, covering an area of up to 600 m^2 per amplifier. This solution enables hearing-aid users in the area enclosed by the wire loop to hear all announcements, or music. Hearing-aid users can set their devices to the T-mode setting to receive the signal coming from the loop. They receive announcements in excellent audio-quality, without the background noise or reverberations that normally impair intelligibility for people with hearing disabilities.

Functions

The loop amplifier can be connected to a mixing amplifier's line level output, or it can accept up to two microphone/line signals directly. A 100 V priority input is available for uplink to a voice alarm system. This input can be monitored for the presence of a pilot tone. The built-in supervision monitors all key functions of the loop amplifier, and the fault state is available on a fail-safe relay. This makes it possible to use the Plena Loop Amplifier in an IEC 60849 compliant system, and to include the induction loop in the supervised transmission paths.

For added ease, the loop amplifier is equipped with a limiter that keeps the output field strength below the prescribed 100 mA/m. This circuitry can also be set to an automatic gain control (AGC) that amplifies weak signals for enhanced intelligibility, while attenuating loud signals. This ensures that all information is presented at a comfortable listening level.

The unit has tone controls and a metal loss compensation circuit to adjust the sound to the program material and the environment. The controls have locks to prevent unwanted access after they have been adjusted.

The Plena loop amplifier is stackable (master/slave configuration) to cover very large areas, and supports low spillover schemes. Its unique quadrate configuration provides uniform field strengths even over multiple loops.

Controls and indicators

Front

- LED power meter
- Current meter
- Four LEDS for fault, limiter, AGC, loop integrity
- Headphones socket
- Two tone controls
- Three input volume controls (master and two channels)
- On/off switch

Back

- Metal loss compensation control
- Supervision switch
- Voltage selector
- Frequency range switch
- AGC/Limiter switch
- AGC range control
- VOX/mix switch
- Pre/post amp switch
- Two phantom power switches
- Two Mic/line switches

Interconnections

Back

- Master input
- Two slave outputs
- Audio inputs
- Priority input
- Induction loop output
- Line output
- Fault output
- Ground screw
- Mains socket

Certifications and Approvals

Region	Certification
Europe	CE

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1
Induction loop systems	acc. to EN 60118-4
EVAC	acc. to EN 60849 acc. to EN 54-16

Installation/Configuration Notes

PLN-1LA10 rear view

Parts Included

Quantity	Component
1	PLN-1LA10 Loop Amplifier
1	Power cord
1	Set of 19” mounting brackets
1	Plena CD Installation and User Instructions

Technical Specifications

Electrical

Mains power supply	
Voltage	230/115 VAC, ±10%, 50/60 Hz
Inrush current	7 A at 230 VAC / 14A at 115 VAC
Max power consumption	500 VA
Performance	
Output current	10 A
Frequency response	50 Hz to 10 kHz (+1/-3 dB at -10 dB ref. rated output)
Distortion	<1% at rated output power, 1 kHz
Bass control	-8/+8 dB at 100 Hz
Treble control	-8/+8 dB at 10 kHz
Mic/line input	2 x
Connector	3-pin XLR, balanced mic/line level (switchable)
Sensitivity	1 mV / 1 V (mic/line)
Impedance	>1 kohm
Dynamic Range	100 dB
S/N (flat at max volume)	75 dB
Headroom	25 dB
Mains power supply	
Phantom power supply	16 V (switchable)
VOX functionality	Input 1 (switchable) mutes input 2
VOX sensitivity	-10 dB ref nominal input
Priority input	
Connector	Screw
Sensitivity	100 V, transformer balanced
Impedance	>100 kohm
S/N (flat at max volume)	63 dB
Headroom	25 dB
Pilot tone detection	-20 dB, ref 100 V (10 V)
Pilot tone threshold	-26 dB, ref 100 V (5 V)
Master input*	1 x
Connector	1/4" TS jack
Line output	
Connector	3-pin XLR, balanced
Nominal level	1 V
Impedance	200 ohm
Loop output	
Connector	Screw
Slave output	(for master input of other PLN-1LA10)
Connector	1/4”TS jack 0° to 90°
Fault Relay	
Connector	Screw
Contacts	100 V, 2 A (voltage free, SPDT)

** Only intended for slave output of another PLN-1LA10. Plugging a jack into this input disables all other inputs and the limiter. The unit becomes a slave to the connected master. Only the master control on the front panel will function. To monitor the level, switch the VU meter switch to POST Amp.*

Mechanical

Dimensions (H x W x D)	94 x 430 x 320 mm (19" wide, 2U high)
Weight	Approx. 11.6 kg
Mounting	Stand-alone, 19" rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<35 dB SPL at 1m, temperature controlled

Ordering Information

PLN-1LA10 Plena Loop Amplifier drive a wire loop installed in the floor or ceiling, covering an area of up to 600 m^2 per amplifier.	**PLN-1LA10**

PLN-ILR Plena Inductive Loop Receiver

Features

- **Monitoring of an inductive loop system**
- **Quick check of field strength**
- **Neck cord included for use by assistive hearing device users without “T”setting.**
- **Earphones included**
- **For two AAA rechargeable or alkaline batteries**

The Plena inductive loop receiver is a compact, portable device intended to receive the field from an inductive loop for assistive listening device users. It can be used to monitor the field strength and quality of the inductive loop system such as from the Bosch Plena PLN-1LA10.

Functions

For non assistive listening device users it is difficult to verify the correct working of the inductive loop system. The field strength has to be in well defined limits, not too high or too low. Also if a user indicates an incorrect functioning it may be cause by the hearing aid itself or perhaps hum injected by other sources.

By using the PLN-ILR the audio quality can be monitored and the field strength can be set easily by observing the two LEDs. To promote the use at the correct level, the display showing field strength is on the side of the unit. When a user holds the receiver up to eye level, the coil is automatically placed in the same plane as the assistive listening device. When used with a neck cord (included), the orientation is also vertical so the lightweight unit can be used for extended periods of time.

The PLN-ILR is priced attractively so it can also be used in larger numbers to help users who do not have a T-setting on their hearing aid.

Certifications and Approvals

Region	Certification
Europe	CE
Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2
Induction Loop Systems	acc. to EN 60118-4 / IEC 118-4

Parts Included

1	PLN-ILR Plena Inductive Loop Receiver
1	Neck cord
1	Set of earphones
1	QRC

Technical Specifications

Electrical	
Power supply	Two AAA batteries
Sensitivity	100 mA / 400mA
Dynamic range	80 dB
S/N	75 dB (100 mA input)
Headroom	10 dB
Impedance	200 Ohm
Headphone output connector	3.6 mm (0.14 in) TRS jack
Mechanical	
Dimensions (H x W x D)	114 x 63 x 21 mm (4.49 x 2.48 x 0.83 in)
Weight	Approx. 130 g (0.29 lb)
Color	Charcoal
Environmental	
Operating temperature	+5 ºC to +45 ºC (+41 ºF to +113 ºF)
Storage temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Relative humidity	<95%

Ordering Information

PLN-ILR Plena Inductive Loop Receiver portable device intended to receive the field from an inductive loop for assistive listening device users	**PLN-ILR**

1

PLN-DVDT Plena BGM Source

Features

- **Source unit for background music**
- **DVD/CD-player for video and audio**
- **Supports MP3, JPEG, and multi-format video outputs**
- **AM/FM tuner with 10 presets and digital control**
- **Simultaneous operation of-player and tuner**
- **Separate outputs and level controls for player and tuner**
- **Combined DVD/CD-player/tuner output with player priority**
- **Remote control**
- **System Overview**

The Plena BGM source unit is the ideal high-quality source for background music (BGM) in public address systems. The unit consists of a DVD/CD-player and a digitally controlled FM/AM tuner in a compact 2U-high, 19" housing. It is typically used in shops, supermarkets, restaurants, bars, canteens, gyms, showrooms, and other places where BGM creates the right atmosphere. It connects to almost any public address amplifier. The unit's appearance is in line with the Bosch Plena range of products.

Functions

Player

The DVD/CD player provides up to a whole workweek of high quality, uninterrupted music playback from a single MP3 DVD. It supports music organized on a disk in multiple folders. The player will automatically search and play all playable formats on a disk, and has repeat mode. Navigation is done on the multi lingual on screen display.

Formats

The unit plays normal audio and video DVD/CDs, as well as long-play MPEG2, MP3 encoded CDs. It can also play MP3s and display JPEGs on CD-R, DVD-ROM, DVD-R. MP3-files with bit-rates from 32 kbps to 320 kbps, mono/stereo/joint-stereo, and both continuous bit-rates (CBR) and variable bit-rate (VBR) are supported. Component, composite, and S-Video connectors are available for video output. The unit plays PAL and NTSC content in progressive scan, as well as interleaved. It is also possible to view JPEG images from disk.

Output

Next to the stereo analog outputs, the disc part of the unit also has a TOSlink optical output that supports S/P DIF as well as DST and Dolby Digital. It is possible to output S/P DIF, regardless of the source, and to choose left/right, surround channels of low frequency effects on this output.

Tuner

The digitally controlled AM/FM tuner uses a frequency synthesizer for accurate capture of radio stations and has ten presets for FM and ten presets for AM to store favorite radio stations.

Controls and operation

Basic controls are on the unit itself, while navigation and configuration is done with the remote control and the on screen display. The unit supports most major languages, and it is possible to set regional preference, such as subtitle language preference.

Both the player and the tuner can operate simultaneously on different outputs to facilitate two-channel BGM distribution. The output level of both outputs can be adjusted via rear panel presets. Combined output is also possible, to connect to systems without input selection. In the combined output mode the system defaults to the tuner signal as long as the DVD/CD-player is not playing. When the player is active, its signal overrides that of the tuner.

Certifications and Approvals

Region	Certification	
Europe	CE	
Safety		acc. to EN 60065
Immunity		acc. to EN 55103-2
Emission		acc. to EN 55103-1

Parts Included

Quantity	Component
1	PLN-DVDT Plena BMG Source
1	Remote control
1	Power cord
1	Set of 19” mounting brackets
1	Installation and User instructions
1	Plena CD

Technical Specifications

Electrical

Mains power supply		
Voltage	230/115 VAC, ±15%, 50/60 Hz	
Max power consumption	25 VA	
DVD/CD-player		
Frequency response	2 Hz to 20 kHz (+1/-3 dB)	
Distortion	<0.1%	
S/N	>96 dB	
Mp3		
MP3 bit rates	CBR 32 to 320 kbps and VBR, mono and stereo	
Data buffer shock protection	32 MB	
Tuner		
Frequency response	30 Hz to 15 kHz (+1/-3 dB, FM)	
Distortion	<1%	
S/N	>63 dB (1 mV, FM)	
DVD/CD player outputs	2 x	
Connector	Cinch, (RCA) stereo	
Nominal level	500 mV	
Optical output	TOSlink (PCM, multi channel)	
Supported formats	DVD, CD, (re-)writables MP3, MP4, JPEG	
Mixed output	1 x	
Connector	Cinch, (RCA) stereo	
Nominal level	200 mV	
Video outputs		
Component connectors	3 x cinch	
Composite connector	1 x cinch	
S-video connector	1 x mini-DIN	
Tuner freqency range		
Range	FM	87.5 – 108 MHz
		(Europe, 50 kHz)
		87.5 – 108 MHz
		(Asia/America, 100 kHz)
	AM	531 – 1602 kHz
		(Europe, 9 kHz)
		530 – 1610 kHz
		(Asia/America, 10 kHz)
Sensitivity		
Mains power supply		
	FM	2 µV (26 dB S/N)
	AM	30 µV (20 dB S/N)
Mechanical		
Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)	
Weight	Approx. 4.2 kg	
Mounting	Standalone, 19” rack	
Color	Charcoal	
Environmental		
Operating temperature	-10 ºC to +45 ºC (14 ºF to +113 ºF)	
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)	
Relative humidity	<95%	

Ordering Information

PLN-DVDT Plena BGM Source **PLN-DVDT**
high-quality source for background music (BGM) in public address systems.

1

PLN-2AIO120 BGM/Paging System

Features

- **All-in-one solution for background music and paging**
- **DVD/CD-player for video and audio**
- **Supports MP3, JPEG, and multi-format video outputs**
- **FM/AM tuner with 10 presets and digital control**
- **Dual-zone 120 W mixer amplifier with volume control per zone**
- **Selectable priority and VOX switching on microphone input 1**
- **Optional 2-tone chime to precede announcements**
- **Remote control**

The Plena BGM/paging system is the versatile all-in-one solution to cover all needs for background music (BGM), making announcements and paging people. This high-performance yet affordable unit is very easy to install and operate.

It is typically used in shops, supermarkets, restaurants, bars, schools, canteens, gyms, garages and other places where BGM creates the right atmosphere, and also amplified speech needs to be heard clearly.

Functions

DVD/CD Player

The DVD/CD player provides up to a whole workweek of high quality uninterrupted music playback from a single MP3 DVD. It supports music organized on a disk in multiple folders. The player will automatically search and play all playable formats on a disk, and has repeat mode. Navigation is done on the multi lingual on screen display.

The unit plays normal audio and video DVD/CDs, as well as long-play MPEG2, MP3 encoded CDs. It can also play MP3s and display JPEGs on CD-R, DVD-ROM, DVD-R. MP3-files with bit-rates from 32 kbps to 320 kbps, mono/stereo/joint-stereo, and both continuous bit-rates (CBR) and variable bit-rate (VBR) are supported. Component, composite, and S-Video connectors are available for video output. The unit plays PAL and NTSC content in progressive scan as well as interleaved.

The disc part of the unit also has a TOSlink optical output that supports S/P DIF as well as DST and Dolby Digital. It is possible to output S/P DIF regardless of the source and choose left/right, surround channels of Low frequency effects on this output.

Basic controls are on the unit itself, while navigation and configuration is done with the remote control and the on screen display. The unit supports most major languages, and it is possible to set regional preference, such as subtitle language preference.

FM/AM Tuner

The digitally controlled FM/AM tuner uses a frequency synthesizer for accurate capture of radio stations and has 10 presets for each waveband to store favorite programs. An auxiliary (music) input and tape output provide connections for external equipment.

Microphone Inputs

The announcement part of the unit has three balanced microphone inputs. Microphone input 1 has a DIN socket on the rear for a priority microphone (e.g. the LBB 1950/00) with selectable priority, a two-tone chime to precede a priority announcement, a speech filter, phantom power. It also has a phone jack connector on the front with selectable VOX activation for a dynamic microphone, such as the LBC 2900/15, as well as presets for music ducking level and chime volume. Microphone inputs 2 and 3 have XLR sockets with selectable phantom power, and are mixed with the BGM. All microphone inputs and the music source have their own volume control, with a shared bass and treble tone control and a shared master volume control.

Outputs

The powerful 120 W output section has two transformer-isolated, 100 V constant voltage outputs for driving 100 V-loudspeakers in two separate zones. The 100 V-technique reduces line losses on longer distances and allows easy parallel connection of multiple loudspeakers. Both zones can be selected individually from the front panel, and the output level for each zone can be individually set. Each zone also has a low-voltage output for connecting 8 ohm, transformerless loudspeakers (consumer-type). There is a separate, 100 V call-only output for addressing an area where announcements are necessary, but BGM is not desired. A voltage-free call-active contact is available for overriding local volume controls during priority calls, and for other purposes. An LED meter monitors the output.

Controls and indicators

Front

- Power on/off
- Disc eject key
- Disc previous key
- Disc play key
- Disc next key
- Disc stop key
- Disc display
- Disc repeat key
- Disc pause key
- Tuner memory keys 1-5 and 6-10
- Tuner shift key to select memory 1-5 or 6-10
- Tuner program key
- Tuner scan key
- Tuner FM/AM selection key
- Tuner frequency up/down keys
- Tuner display

Back

- Mains voltage selection
- Chime selection DIP switch
- Phantom power switch

Interconnections

Back

- FM antenna input
- AM antenna input
- Tape output (mono, 2 x)
- Aux input (stereo converted to mono)
- Call only output
- Zone 1 output
- Zone 2 output
- Call active output
- Component video output (3 x)
- Composite video output
- Digital optical output
- Earth connection screw
- Mains connection

Certifications and Approvals

Region	Certification	
Europe	CE	
Safety		acc. to EN 60065
Immunity		acc. to EN 55103-2
Emission		acc. to EN 55103-1

Parts Included

Quantity	Component
1	PLN-2AIO120 PLENA BMG/Paging System
1	Power cord
1	Remote control
1	Installation and User Instructions
1	Plena CD

Technical Specifications

Electrical

Mains power supply		
Voltage		230/115 VAC, ±10%, 50/60 Hz
Inrush current		8 A @ 230 VAC / 16 A @ 115 VAC
Max power consumption		400 VA
Max/rated output power		180 W / 120 W
Performance		
Frequency response		60 Hz to 18 kHz (+1/-3 dB @ ref. rated output)
Distortion		<1% @ rated output, 1 kHz
Bass control		-8/+8 dB @ 100 Hz
Treble control		-8/+8 dB @ 10 kHz
Mic input		1 x
Connectors		5-pin DIN, balanced, 6.3 mm jack
Sensitivity		1 mV
Impedance		>1 kohm
S/N (flat at max volume)		63 dB
S/N (flat at min volume/ muted)		75 dB
Headroom		25 dB
Speech Filter		-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply (on 5-pin DIN)		12 V
VOX (on 6.3 mm jack)		Attack time 200 ms, release time 2 s, ducking level adjustable
Mic input		2 x
Connector		3-pin XLR, balanced
Sensitivity		1m V
Impedance		>1 kohm
S/N (flat at max volume)		63 dB
S/N (flat at min volume/ muted)		75 Db
Headroom		25 dB
Phantom power supply		12 V
Auxiliary input		
Connector		Cinch, converted to mono
Sensitivity		200 mV
Impedance		22 kohm
S/N (flat at max volume)		70 dB
S/N (flat at min volume/ muted)		75 dB
Headroom		25 dB
Tuner		
Tuning range	FM	87.5 to 108 MHz (Europe, 50 kHz;
		Asia / USA, 100 kHz)
	AM	531 to 1602 kHz(Europe, 9 kHz)
		530 to 1610 kHz(Asia / USA, 10 kHz)
FM sensitivity		2 µV (26 dB S/N)
AM sensitivity		30 µV (20 dB S/N)
Frequency response		30 Hz to 15 kHz (+1 / -3 dB, FM)

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Mains power supply	
Distortion	<1%
S/N	>63 dB (1 mV, FM)
Tuner output	1 x
Connector	Cinch, (RCA) stereo
Nominal level	200 mV
DVD-Player	
Frequency response	20 Hz to 20 kHz (+1/-3 dB)
Distortion	<0.1%
S/N	>96 dB
General	
MP3 bit rates	CBR 32 kbps to 320 kbps and VBR, mono and stereo
Data buffer shock protection	16 MB
DVD/CD player output	1 x
Optical output	TOSlink (PCM, multi channel)
Supported Formats	DVD, CD, (re-)writables MP3, MP4, JPEG
Video outputs	
Component connectors	3 x cinch
Composite connector	1 x cinch
S-video connector	1 x mini-DIN
General	
Data buffer	8 MB (shock protection)
Lifetime	>10.000 CD play cycles
Max number of titles	999 (MP3), 99 (audio CD)
Tape output	
Connector	Cinch, 2x mono
Nominal level	350 mV
Impedance	1 kohm
Loudspeaker outputs	6 x 2
Connector	Screw, floating
100 V outputs	120 W rated (all zones together)
Zone output attenuation taps	100/70/50/35/25/18 V for 0/-3/-6/-9/-12/-15 dB (120/60/30/15/8/4 W)
8 ohm outputs	18 V (40 W rated per zone)
Call-active	1 x
Connector	Screw
Relay	Voltage free, max 100 V, 2 A
Mechanical	
Dimensions (H x W x D)	144 x 430 x 320 mm (19" wide, 3U high)
Weight	Approx. 11.6 kg
Mounting	Standalone (rack mounting not recommended)
Color	Charcoal

Environmental	
Operating temperature	-10 ºC to +45 ºC (14 ºF to +113 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<35 dB SPL at 1 m, temperature controlled

Ordering Information

PLN-2AIO120 BGM/Paging System **PLN-2AIO120**
all-in-one solution to cover background music (BGM), announcements and paging people

LBB 1965/00 Plena Message Manager

Features

- **Highly flexible stand-alone digital message player**
- **Up to 12 messages and 12 trigger inputs**
- **Downloads messages from a PC in WAV format**
- **Compliant with standards for emergency sound systems**
- **Zone control for Plena system preamplifier LBB 1925/10**
- **Front panel control and remote control**

The Plena message manager is a high performance, highly versatile stand-alone digital message player. Applications range from spot announcements in supermarkets and theme parks to warning and evacuation messages in emergency situations.

Functions

Messages

Up to 12 messages can be stored in the internal 64Mbit EEPROM, without the need for data retention battery backup. Each message can have any length within the total available capacity. A PC uploads messages and configurations via RS-232 to the unit, which can then operate without a PC. The standard WAV format is used for messages with sample rates of 8 kHz to 24 kHz with 16-bit word length (linear PCM). This gives up to 500 seconds of recording time with a CD-quality signal-to-noise ratio. The use of linear PCM instead of a compressed audio format, such as MP3, ADPCM and u-law/A-law, ensures high-quality playback of all types of audio signals, including sound effects and special tones, such as attention chimes.

The unit has 12 contact closure trigger inputs for announcements. Each can be configured for a sequence of up to four messages from those available. In this way messages can be used in combination with other messages, optimizing flexibility and storage space usage. When used together with the six-zone LBB 1925/10 Plena System Pre-Amplifier, a zone selection can be configured for each trigger input. The message manager communicates this selection to the LBB 1925/10 via an RS-232 connection. Continuous activation of a trigger input causes the corresponding message sequence to repeat.

Trigger Inputs

The trigger inputs have a serial priority, i.e., input 1 has priority over input 2, input 2 over input 3, etc. The high priority trigger inputs 1-6 are only accessible as contacts on the rear panel to prevent accidental use. The lower priority trigger inputs 7-12 are also available as trigger switches on the front panel.

Integrity and Dependability

The LBB 1965/00 can also play emergency/evacuation messages, as it fulfills the IEC 60849 standard. The microcontroller continually checks the data integrity of the system, and a watchdog circuit, in turn, checks the microcontroller. The unit monitors the D/A converter with a pilot tone, and the high priority trigger inputs (one to six) for cable short circuits and breaks. A 24 V battery backup connection with automatic fail-safe provides continued operation if the mains power should fail. A 20 kHz pilot tone can be mixed with the output signal to supervise the link to the next amplifier. This also works for loudspeaker supervision in combination with 20 kHz detectors. Any failure causes a red LED fault indication, and activates a fault output contact.

Loop-through Facility

The LBB 1965/00 provides a loop-through facility with balanced XLR and unbalanced cinch inputs and outputs. This allows the unit to be inserted into an existing audio link. As long as no announcements are playing, the signal input is routed to the output. If an announcement begins, the input signal is interrupted and the announcement is routed to the output.

Updating

Messages and configuration settings are uploaded from a PC. After uploading, the trigger inputs 7-12 can be configured by using the front panel switches, without the need for a new upload or even a PC. Message content can be monitored using the available headphone jack.

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity

Safety	according to EN 60065
Immunity	according to EN 55103-2
Emission	according to EN 55103-1

Installation/Configuration Notes

LBB 1965/00 back view

Parts Included

Quantity	Component
1	LBB 1965 Plena Message Manager
1	Power cord
1	Set of 19" mounting brackets
1	Plena CD
1	Installation and User Instructions

Technical Specifications

Electrical

Mains power supply	
Voltage	230/115 VAC, ±10%, 50/60 Hz
Inrush current	1.5 A at 230 VAC / 3 A at 115 VAC
Max power consumption	50 VA
Battery power supply	
Voltage	24 VDC, +15% / -15%
Current max	1 A
Performance	
Supported sample rates (fs)	24 / 22.05 / 16 / 12 / 11.025 / 8 kHz
Frequency response	
@ fs=24kHz @ fs=22.05kHz	100 Hz to 11 kHz (+1 / -3 dB) 100 Hz to 10 kHz (+1 / -3 dB)
@ fs=16kHz	100 Hz to 7.3 kHz (+1 / -3 dB)
@ fs=12kHz	100 Hz to 5.5 kHz (+1 / -3 dB)
@ fs=11.025kHz	100 Hz to 5 kHz (+1 / -3 dB)
@ fs=8kHz	100 Hz to 3.6 kHz (+1 / -3 dB)
Distortion	<0.1% at 1 kHz
S/N (flat at max volume)	>80 dB
Supervision DAC	1 Hz pilot tone
Line input	1 x
Connector	3-pin XLR, balanced
Sensitivity	1 V
Mains power supply	
Impedance	20 kohm
CMRR	>25 dB (50 Hz-to 20 kHz)
Line input	1 x
Connector	Cinch, unbalanced
Sensitivity	1 V
Impedance	20 kohm
Trigger input	6 x
Connector	Screw
Activation	Contact closure
Supervision method	Cable loop resistance check
Line output	1 x
Connector	3-pin XLR, balanced
Nominal level	1 V, adjustable
Impedance	<100 ohm
Line output	1 x
Connector	Cinch, unbalanced
Nominal level	1 V, adjustable
Impedance	<100 ohm
Message active output	1 x
Connector	Screw
Relay	100 V, 2 A (voltage free, SPDT)
Fault output	1 x
Connector	Screw
Relay	100 V, 2 A (voltage free, SPDT)
Interconnection	1 x
Connector	9-pin D-sub (RS-232)
PC protocol	115 kb/s, N, 8, 1, 0 (upload)
LBB 1925/10 protocol	19.2 kb/s, N, 8, 1, 0 (zone control)

Messages

Data format	WAV-file, 16-bit PCM, mono
Memory capacity	64 Mb EEPROM
Recording/playback time	500 s @ fs=8 kHz 167 s @ fs=24 kHz
Number of messages	12 (maximum)
Data retention time	>10 years

Mechanical

Dimensions (H x W x D)	56 x 430 x 270 mm 2.20 x 16.92 x 10.62 inch (19" wide, 1U high, with feet)
Weight	Approx. 3 kg
Mounting	Stand-alone, 19” rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering Information

LBB 1965/00 Plena Message Manager high performance, highly versatile stand-alone digital message player	**LBB1965/00**

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LBB 1968/00 Plena Feedback Suppressor

Features

- **Patented feedback suppression algorithm**
- **Suppresses feedback before it occurs**
- **Automatically adapts to the acoustical situation**
- **Up to 12 dB additional gain before feedback occurs**
- **Balanced line or microphone input with phantom supply**
- **Second microphone input with automatic mixer**

The Plena feedback suppressor uses a powerful DSP with a patented algorithm to suppress acoustic feedback. It actively filters out unwanted room reverberations using an echo-cancellation and de-reverberation algorithm. By adding masked (inaudible) noise to the output signal or by shifting the frequency of the output signal by five hertz, the Plena feedback suppressor is able to detect the reverb component of the signal and remove it before feedback occurs. This leaves the original signal intact.

Functions

The adaptive filter can be switched between fast mode and accurate mode. The fast mode is for situations where the microphone position changes over time, such as in a discussion system with multiple switching microphones. The accurate mode is for situations with a fixed microphone position, such as on a pulpit where the acoustical environment is more stable. The adaptive filter is allowed to converge more slowly, suppressing reverberation components even more effectively. Depending on the acoustical environment and the chosen mode of operation, up to 12dB of additional gain is possible before acoustic feedback occurs.

The Plena feedback suppressor also features a built-in automatic mixer for the two microphone inputs. In many situations, such as on a rostrum, a pulpit or a conference table, two microphones are used to capture the voice of a moving speaker better, even though this increases the risk of acoustic feedback. To counter this, the automatic mixer in the Plena feedback suppressor reduces the gain of the microphone with the lowest signal input and increases the gain of the microphone with the highest signal input. This way, it tracks the moving speaker for optimum speech intelligibility, while maintaining a maximum feedback margin by keeping the combined gain constant. The automatic mixer function remains operational even when the feedback suppressor is deactivated.

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
Safety		acc. to EN 60065
Immunity		acc. to EN 55103-2
Emission		acc. to EN 55103-1

Installation/Configuration Notes

LBB 1968/00 back view

Parts Included

Quantity	Components
1	LBB 1968/00 Plena Feedback Suppressor
1	Power cord
1	Set of 19“ mounting brackets
1	0.5 m XLR cable
1	Installation and User Instructions
1	Plena CD

Technical Specifications

Electrical

Mains power supply	
Voltage	230/115 VAC, ±10%, 50/60 Hz
Inrush current	1.5 A @ 230 VAC / 3 A @ 115 VAC
Max power consumption	50 VA
Performance	
Sample rate (fs)	32 kHz
Frequency response	125 Hz to 15 kHz
Distortion	<0.1 % @ 1 kHz
Gain (bypass mode)	0 dB line in, 24 / 36 / 48 dB mic in
Gain (active mode)	0 dB line in, 24 / 36 / 48 dB mic in
S/N	> 90 dB
Signal delay	<11 ms
Decorrelator	Frequency shift, 5 Hz up Masked noise
Mic / line input	1 x
Connectors	3-pin XLR, 5-pin DIN, balanced
Max level	18 / 6 / -6 dBV line in, -18 / -30 / -42 dBV mic in
Impedance	10 kohm / 2 kohm (line / mic)
CMRR	> 25 dB (50 Hz to 20 kHz)
Phantom power	16 V (mic only, switchable)
Priority control	Loop through of pin 4 and 5 of DIN
Mic input	1 x
Connectors	3-pin XLR, 5-pin DIN, balanced
Max level	-18 / -30 / -42 dBV
Impedance	2 kohm
Phantom power	16 V (switchable)
Priority control	Loop-through of pin 4 and 5 of DIN
Line input	1 x
Connector	Cinch, unbalanced
Max input level	18 / 6 / -6 dBV
Impedance	20 kohm
Line output	1 x
Connector	3-pin XLR, balanced
Max level	18 / 6 / -6 dBV (line in), 6 dBV (mic in)
Impedance	<100 ohm
Line output	1 x
Connector	Cinch, unbalanced
Max level	18 / 6 / -6 dBV (line in), 6 dBV (mic in)
Impedance	<100 ohm
Mic output	
Connector	5-pin DIN, balanced
Max level	22 / -34 / -46 dBV (line in), 34 dBV (mic in)
Impedance	<100 ohm
Priority control	Loop-through of pins 4 and 5 of DIN from inputs

Mechanical

Dimensions (H x W x D)	56 x 430 x 270 mm (19" wide 1U high)
Weight	3 kg (6.6 lb)
Mounting	Stand-alone, 19" rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering Information

LBB 1968/00 Plena Feedback Suppressor a powerful DSP with a patented algorithm to suppress acoustic feedback	**LBB1968/00**

1

PLN-6TMW Plena Weekly Timer

Features

- **Two weekly programs**
- **14 Chimes**
- **Six contact outputs**
- **Automatic daylight/standard time**
- **BGM level control**
- **Hold and pause function**
- **Programming on the unit and via the supplied PC program**
- **Ideal partner complement to the Plena Message Manager and Voice Alarm Controller for timed messages**

The Plena Weekly Timer is an accurate timer for use in public address systems. It is ideally suited for schools, shopping malls and all other venues that need regularly timed messages, signals or other controls. It is ideally suited for connection to the Plena Message Manager and Voice Alarm System.

Functions

The unit has two weekly schedules as well as a pause mode, where all actions except the clock display are suspended. Events can be programmed with an accuracy of one minute. There is no limit to the number of events, every minute may have an event associated with it. Each day can have a separate event set, and two schedules can be programmed. The schedule can be selected via the front panel. Each event can trigger:

- A chime
- Any combination of output contacts
- BGM volume change

The timer can broadcast 14 different chimes via the audio throughput. It has six programmable output contacts with relays to connect to other equipment. Programmed contact events can open or close the contact or generate a pulse of a configurable duration. The contacts can also be controlled via buttons on the front panel.

The unit has an audio input and output to attenuate BGM signals. The volume can be controlled directly from the front panel, or programmed to change level at fixed times, for example, to automatically attenuate music in the morning or evening hours. It can automatically revert to the programmed level at the next event.

The timer has a clock sync input to synchronize the time with an external source but can also take the correct time from a PC. This way it can synchronize with a time server. The timer clock also keeps track of the date, ensuring correct weekday display and automatic daylight/standard time setting. (According to European, North American, user defined dates or off). The timer has a 24 V backup power input with reverse-polarity protection as well as a back up battery that preserves the correct clock setting. Synchronization and programming is done via the USB port. Programming can also be performed via the front panel. An RS-232 connector is available to connect to a large separate display.

Certifications and Approvals

Region	Certification	
Europe	CE	
Safety		according to EN 60065
Immunity		according to EN 55103-2
Emission		according to EN 55103-1

Installation/Configuration Notes

Rear view

Parts Included

Quantity	Component
1	PLN-6TMW Plena Weekly Timer
1	Power cord
1	Set of 19" mounting brackets
1	Plena CD
1	Instructions for use

Technical Specifications

Electrical

Mains power supply	
Voltage	230/115VAC, ±15%, 50/60 Hz
Max power consumption	30 W
Battery power supply	
Voltage	24 VDC, +15% / -15%
Current max	1 A
Performance	
Frequency response	20 Hz to 20 kHz (-3 dB)
Total harmonic distortion	< 0.01 % (1kHz)
S/N	<85 dB
Dynamic range	>100 dB
Line input	1 x
Connector	XLR balanced
Sensitivity	1 V
Impedance	>5 kohm
Headroom	>25 dB
Line output	1 x
Connector	XLR balanced
Impedance	>100 ohm
Clock	
Accuracy (without sync)	25 ºC: better than <2 s/month -10 ºC to 55 ºC: <3.5 s/month
Sync input	NO, contact closure synchronizes to the nearest hour
Output contacts	
Connector	MC 1,5/6-ST-3,5
Rating	100 V, 1 A, voltage free

Mechanical

Dimensions (H x W x D)	48 x 440 x 312 mm 1.88 x 17.32 x 12.28 inch (without brackets, with feet) 44 x 483 x 312 mm 1.73 x 19.01 x 12.28 inch (with brackets, without feet)
Weight	Approx. 3 kg
Mounting	Stand-alone, 19” rack
Color	Charcoal with silver

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering Information

PLN-6TMW Plena Weekly Timer **PLN-6TMW**
for regularly timed messages, signals or other controls.